ALBERTA
ENERGY AND
NATURAL
RESOURCES

ANNUAL REPORT MARCH 31 1985

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ENR Report No. I/2-84/85
ISBN 0-86499-264-5
ISSN 0700-2645

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Alberta

ENERGY AND NATURAL RESOURCES

Legislature Building, Edmonton, Alberta, Canada T5K 2B6

November 1, 1985

The Honorable Helen Hunley
Lieutenant Governor of the Province of Alberta

Your Honor:

We have the honor to submit the Annual Report of the Department of Energy and Natural Resources for the fiscal year ended March 31, 1985.

Respectfully submitted,

JOHN ZAOZIRNY
Minister of Energy and Natural Resources

DON SPARROW
Associate Minister of Public Lands and Wildlife

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Message of the Minister

Canadian energy policy underwent a major evolution during the past year. The regulated environment which had been in place for oil pricing and marketing since 1973 and the onerous tax burden of the National Energy Program gave way to a more market-oriented system with more equitable taxation. As a result the oil and gas industry's recovery was enhanced, and industry activity improved to levels close to those prevailing before the National Energy Program.

The dismantling of the National Energy Program which began in September 1981 was completed with the conclusion of the Western Energy Accord in March 1985. This agreement provided for the deregulation of crude oil marketing on June 1, 1985 and contained a commitment to move to a more market-sensitive regime for natural gas. More significantly, however, the Energy Accord brought a renewed sense of stability, economic realism and fairness to the energy sector. It returned federal energy policy to basic principles essential for the well-being of the energy industry: taxation of profits, not gross revenues; incentives that do not discriminate between the regions of Canada or by corporate ownership; and resources that are allocated by the market place.

The Western Energy Accord was preceded by the federal government's announcement of a new gas export policy in July 1984, which involved extensive consultations with industry and the producing provinces. The policy removed the fixed border price for export sales and replaced it with buyer/seller negotiated pricing. I am confident that these changes, along with the significant royalty and incentive adjustments announced June 24, 1985, will ensure the long-term stability and working environment conducive to a vibrant energy industry.

During 1984/85 the energy industry's resurgence began in anticipation of a changed energy policy. The number of oil and gas wells drilled surpassed 6 000, nearing the record levels of 1980. Conventional oil exploration activity increased from 1983/84, with a record number of oil wells drilled. The sale of oil and gas rights, surpassing $660 million, was the third highest in Alberta's history. Enhanced oil recovery activity continued to be strong. Since incentives for enhanced recovery were introduced in 1982, 35 projects have been undertaken. Investment in these projects will exceed $1 billion and will result in over one billion barrels of additional oil production from conventional oil fields. During 1984/85 the largest single enhanced oil recovery project in Alberta was undertaken at Judy Creek. This project alone will result in $125 million in investment and will yield 74 million barrels of oil which would otherwise not have been recovered.

Activity also continued at a high pace in the oil sands and heavy oil sector. Commercial in situ oil sands projects were announced by Dome Petroleum at Lindbergh and by Shell Canada at Peace River. In addition Esso Resources Ltd. announced development of Phases III-VI of the Cold Lake project, which effectively tripled the project's size. In the years to come these projects will result in over $2 billion in new investment in the Alberta economy and generate significant permanent employment opportunities.

The heavy oil and bitumen sectors received a major impetus with the announcement of the $3.2 billion Bi-Provincial Upgrader at Lloydminster. This project is an important step in reaching Alberta's goal of upgrading and enhancing the marketability of our bitumen and heavy oil. It would not have been possible without a joint effort by industry and government.

The natural gas sector continued to be faced by a persistent natural gas surplus in the United States. Nevertheless, following the announcement of the revised natural gas export policy, most export contracts were successfully renegotiated, and export sales increased significantly. An increase in gas sector activity resulted from increased export sales, increased intra-Alberta sales and increased sales within Canada which involved the introduction of the natural gas market incentive plan for industrial sales.

An important step was taken in developing Alberta's underutilized hardwood resource with completion of a $23 million federal-provincial agreement on Forest Resource Development. The agreement will fund applied research and reforestation, with a focus on aspen utilization. Alberta's softwood lumber industry neared record production levels in 1984/85 despite a very competitive export market for lumber and pulp and continued protectionist pressures in the United States.

The coal sector continued to face stiff competition in world export markets. Nevertheless, overall coal production in Alberta increased. While coal markets are expected to remain very competitive in the near term, the outlook for coal development continues to hold promise for the longer term.

Overall, our natural resources industries have begun their recovery from the devastation brought by the world economic recession and the National Energy Program. Despite the uncertainty in world markets, the improved policy environment and the tenacity and resilience of those in the energy and forestry industries have combined to give renewed strength to these industries and a bright outlook for the future.

Message of the Associate Minister

The department continued to implement policies consistent with its responsibility to manage Alberta's renewable resources in a wise and efficient manner. The focus remains on objectives established in the previous year to simplify legislation and procedures, increase service while controlling costs, and transfer some activities to the private sector.

There were significant increases in applications for public land leases. Demand was high for several types of leases related to increased oil and gas activity in northeastern Alberta. The demand for agricultural cropland continued to reach the levels set the previous year. The department also established a policy to allow subleasing of grazing lands to help farmers in drought-stricken areas. Applications for recreational land also increased by 22 per cent.

The Grazing Reserve Program has turned into a success story. A meeting was held with the 30 grazing reserve advisory boards and, at that time, the groundwork was laid to operate the program on a cost recovery basis. Patrons are taking an active interest in the operation of the reserves and are assisting to cut costs. The program's operating costs have been substantially reduced while at the same time extra livestock is accommodated. Livestock and forage management was intensified. The impact of the drought in 1984 and 1985 was largely minimized. The program is now operating on a near break even basis.

The new Wildlife Act, passed in 1984, was a major step in implementing the Fish and Wildlife Policy for Alberta. The act developed out of a year of discussion between the department and the public. Fish and Wildlife's long-term goals for resource planning were further defined in the *Status of the Fish and Wildlife Resource in Alberta.*

The department continued to strengthen communications with individuals and groups interested in fish and wildlife. The Fish and Wildlife Advisory Council remained active in reflecting public opinion on all aspects of fish and wildlife management. The Use Respect access-trespass program, which encourages positive relationships between landowners and recreationalists, was strengthened. In addition, public education and information activities were expanded.

Major changes were made to hunting seasons and game regulations following public consultation.

Construction of the Cold Lake Fish Hatchery was started, and a new facility near Lake Wabamun was planned. Increased numbers and varieties of fish were stocked in Alberta's lakes and streams to provide greater numbers and variety of fish for anglers.

Fish and wildlife habitat development and enhancement activities continued to receive high priority. Active participation continued in the Wetlands for Tomorrow program which seeks to encourage wetland conservation and development. Over 100 projects have been initiated with the Buck for Wildlife program, which promotes private sector development of habitat projects.

Resource planning remained a major focus of activity, as the department co-ordinated the preparation and approval of new sub-regional plans. Public involvement was an important aspect of the planning process.

The department's numerous resource planning programs require the support of extensive resource information and evaluation systems and of mapping services. These continued to be strengthened and expanded in 1984/85, in particular by the application of computer technology. Service to the public was improved through the Maps Alberta program to distribute federal, provincial and municipal maps.

Renewable resources continues to be an area of interest and concern to all Albertans. The department has met the challenges of the past year by developing policies and programs consistent with our goal of managing Alberta's renewable resources for the benefit of present and future generations.

The Department

The Government of Alberta has been responsible for natural resource development since 1930, when responsibility for and ownership of natural resources were transferred to the Crown in right of Alberta. The 1982 Constitutional amendments reaffirmed this responsibility and clarified provincial ownership and jurisdiction over renewable and non-renewable natural resources.

The Department of Energy and Natural Resources (ENR) is responsible for the administration and management of Alberta's energy and natural resources. Responsibilities within the department are divided into three sectors: energy, renewable resources, and finance and administration (Figure 1).

Energy

ENR has been vested with the responsibility for the administration of the Crown's energy resources and for the management and development of these and freehold resources. The Energy Resources Sector, in co-operation with the Mineral Revenues Division, applies sound management practices to encourage participation by the private sector in the development of the resources and to optimize the royalty revenue for the province.

The Energy Sector administers a number of acts which govern the development of the province's energy resources, including:

- Mines and Minerals Act
- Natural Gas Price Administration Act
- Natural Gas Pricing Agreement Act
- Mineral Titles Redemption Act
- Alberta Petroleum Incentives Program Act

The Energy Sector is organized into three divisions: Mineral Resources, Policy Analysis and Planning, and Scientific and Engineering Services. Two other entities reporting to the Deputy Minister of Energy Resources are the Alberta Petroleum Incentives Administration and the Legal Services Division, which provides legal support to all areas of the department.

Renewable Resources

The Renewable Resources Sector is responsible for the administration of Alberta's forest resources, public lands, and fish and wildlife resources. The sector is also responsible for land use planning and for surveying, mapping and aerial photography services within the government. Additional responsibilities include monitoring purchases of "controlled" land and licensing land agents.

The Renewable Resources Sector administers a number of acts and regulations which govern the orderly development and use of Alberta's renewable resources, including:

- Forests Act
- Public Lands Act
- Wildlife Act
- Surveys Act
- Agricultural and Recreational Land Ownership Act
- Land Agents Licensing Act

To fulfil its responsibilities, the Renewable Resources sector is organized into six divisions: Alberta Forest Service, Public Lands, Fish and Wildlife, Resource Evaluation and Planning, Alberta Bureau of Surveying and Mapping, and the Foreign Ownership of Land Administration.

Finance and Administration

The Finance and Administration Sector, in addition to providing direct support services to the department, is responsible for ensuring the adequacy and appropriateness of the legislation and controls relating to the revenues due to the Crown for Alberta's energy and natural resources.

The Finance and Administration Sector fulfils its responsibilities through five divisions: Mineral Revenues, Finance and General Services, Systems Planning and Development, Personnel Services, and Internal Audit.

Other Reporting Entities

Alberta Oil Sands Equity, Alberta Oil Sands Technology Research Authority, and the Alberta Petroleum Marketing Commission report directly to the minister. Alberta Oil Sands Equity's activities are reported through this annual report while the other two have separate annual reports.

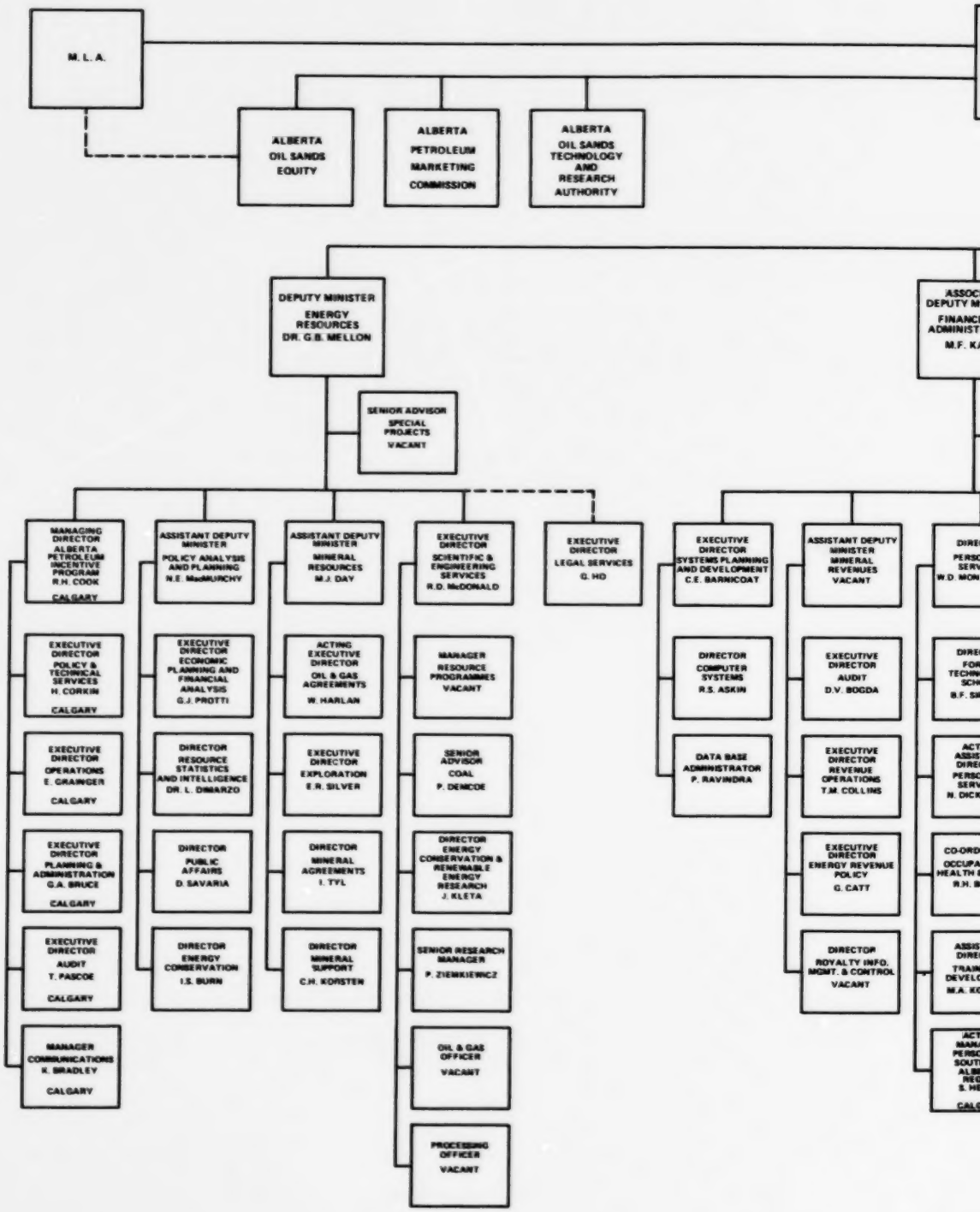
M. L. A.
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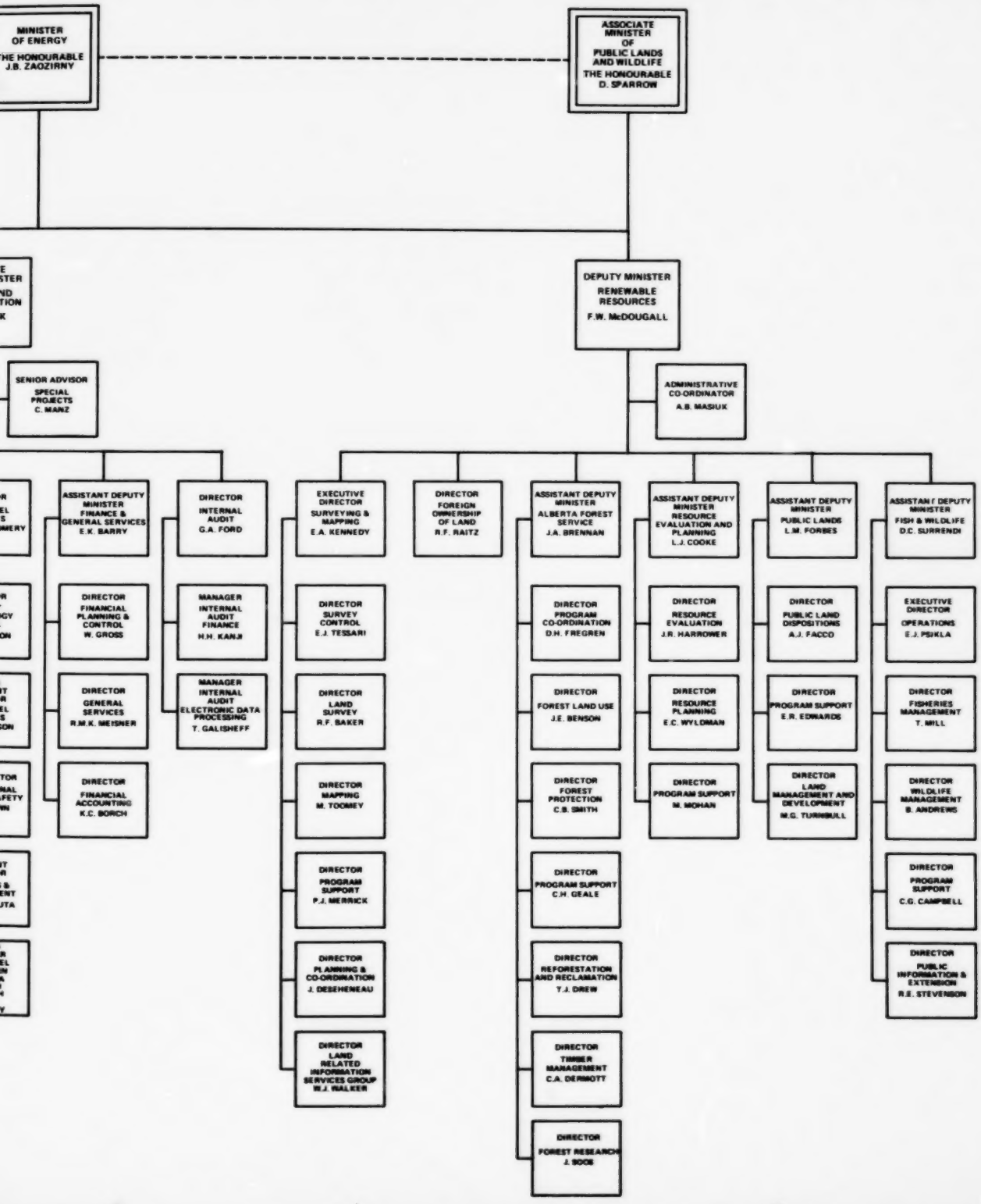
Figure 1 Organization Chart March 31, 1985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DIRECTOR PUBLIC INFORMATION & EXTENSION R.E. STEVENSON

ENERGY

Overview of Energy Developments

Dramatic changes in the energy industry in 1984 were reflected in the department's activities. First, significant new policy announcements were made. The Western Energy Accord, concluded in March 1985, thoroughly revised energy policy. In addition, announcements were made with respect to the natural gas market incentives plan, the revised natural gas export policy and a temporary program to assist the petrochemical industry through the reduction of feedstock costs.

Second, announcements of significant new projects and project authorizations were made. Following government negotiations, the Husky Oil/Bi-Provincial Upgrader and two commercial in situ oil sands projects — Shell Peace River and Dome Lindbergh — were announced. For the first time, authorization was granted for the export of natural gas outside North America, when the government issued a conditional removal permit for the Western Liquified Natural Gas (LNG) project.

The third significant event of 1984/85 was the increase in oil, gas and coal production (Figure 2). In response to the improved climate and the policy changes, industry activity moved up markedly to reach the buoyant levels of 1980. Oil production was 75.6 million cubic metres, up 3.6 per cent compared with 1983. Gas production was 95.3 trillion cubic metres, up 8.5 per cent compared with 1983. Coal production was 26.5 million tonnes, up 6.5 per cent compared with 1983. Other indicators of improved activity were land sales, which at $662 million were the highest since 1980, and well completions which were up 27 per cent to 6 033. Seismic activity was the only area of decreased activity; seismic shot was 107 032 kilometres, down 20.4 per cent.

Figure 2 Energy Activity in Alberta

	1983/84	1984/85	% Change
Crude oil production (thousands of cubic metres)	72 984	75 629	3.6
Raw gas production (millions of cubic metres)	87 862	95 298	8.5
Coal production (thousands of tonnes)	24 915	26 543	6.5
Oil and gas rights sales bonuses (millions of dollars)	487	662	36.0
Wells completed	4 750	6 033	27.0
Seismic shot (kilometres)	134 512	107 032	(20.4)

Source: Resource Statistics and Intelligence Branch

Policy Analysis and Planning

The Policy Analysis and Planning Division is responsible for providing economic and financial analyses and resource-related information to department management. In 1984/85 the division, in co-operation with other divisions, was involved in extensive analysis leading to significant changes in Alberta and federal energy policies.

The division is also responsible for two other areas: promoting energy efficiency through public programs and co-ordinating communications planning for the department.

Policy Changes and Announcements

The major accomplishment for the department was the conclusion of the Western Energy Accord on March 28, 1985. Other major energy policy changes were the development of a new natural gas export pricing policy and a domestic natural gas market incentive plan, the negotiation of fiscal terms for oil sands plants and a heavy oil upgrader, changes in the pricing of petrochemical feedstock and the issuance of a conditional permit for the Western Liquified Natural Gas project.

The Western Energy Accord

In October 1980 the Government of Canada, without consultation, imposed the National Energy Program. In subsequent years numerous changes to the program were made, and intergovernmental agreements on pricing and taxation modified its provisions. With the conclusion of the Western Energy Accord in 1985, the National Energy Program was effectively supplanted. The main provisions of the Accord are:

- Crude oil deregulation to take effect on June 1, 1985.
- The Alberta Border Price to remain at the level of March 28, 1985 pending the introduction of a new domestic natural gas pricing regime. A commitment was expressed to adopt a more flexible and market-oriented pricing mechanism by November 1, 1985.
- Several federal taxes and charges to be removed: the Natural Gas and Gas Liquids Tax, the Incremental Oil Revenue Tax, the Canadian Ownership Special Charge, the

Crude Oil Export Charge and the Petroleum Compensation Charge.

- The Petroleum and Gas Revenue Tax would be phased out by January 1, 1989 and would not be levied on production from wells that commenced drilling on or after April 1, 1985.
- The Petroleum Incentives Program to terminate on April 1, 1986.
- The federal government agrees that any future tax-based incentives will be non-discriminatory in terms of the location of activity or of the ownership and control of the entity undertaking it.

Natural Gas Export Policy

The federal government announced a new natural gas export policy in July 1984. The policy reflected conclusions reached during consultations between Alberta, British Columbia and federal government and industry officials. The key elements of the policy are:

- Exporters could hold to the then-existing two-tiered administered price (base price and the volume-related incentive price) or they could negotiate a price that would be subject to review by the National Energy Board (NEB) and to subsequent approval by the federal government. The NEB review process would require exporters to show that negotiated contractual arrangements would enhance the economic return to Canada, compared to the previous system, and would be in Canada's national interest.
- Key criteria which must be met to obtain approval are: a) price of exported gas must not be less than the Toronto City Gate price, b) price of exported gas must be at least equal to the price of the major competing energy sources in the United States market area, c) appropriate share of costs incurred must be recovered, d) arrangements must provide for reasonable assurance that volumes contracted for will be taken.
- Spot sales that are truly incremental and will not displace other Canadian gas sales will be permitted.

Natural Gas Market Incentive Pricing Plan

In April 1984 the Alberta and federal governments announced a Gas Market Incentive Pricing Plan for large natural gas users east of Alberta. The plan is designed to maintain and expand gas sales through two components:

- A discount of $0.35/gigajoule for *load development*, which will apply to all gas purchases exceeding 75 per cent of the customer's average consumption in the previous two years.
- Funds to be made available for *load retention* through payments to each distributor equal to an amount not exceeding $0.35/gigajoule times 25 per cent of the total of each distributor's eligible customers' base quantities.

In March 1985 it was announced that this program would be extended to April 30, 1986.

Oil Sands Projects

In 1983 the Alberta and the federal governments announced a non-generic oil sands regime through which royalties and taxes would be negotiated with each proponent on a project-by-project basis. Under the regime, Alberta's royalty

Figure 3 Commercial In Situ Oil Sands Projects

Commercial Projects	Pre-Production Capital Costs	Employment	Production (bpd)
Amoco Elk Point	$50 million to 1985 (Phase I)	350 construction 300 permanent	16 000 (1989)
BP/Petro Canada Wolf Lake	$200 million to 1987	450 construction 200 permanent	7 000 (1985)
Esso Cold Lake (Phases I-VI)	$319 million (to 1987)	700 construction 90 permanent	60 000 (1990)
Shell Peace River	$200 million	300-500 construction 60 permanent (incremental)	10 000 (1986)
Dome Lindbergh	$300 million	250 construction 265 permanent	15 000 (1989)

Note: one cubic metre = 6.293 barrels
Source: Resource Statistics and Intelligence Branch

payments are reduced until the operator has earned a return on capital invested. The federal government provides an earned depletion allowance and relief from the Petroleum and Gas Revenue Tax until the developer has recovered the capital costs.

A number of commercial projects have been announced during the past two years. The following represents their status at year end 1984/85:

- A total of five commercial in situ projects were in various stages of development (Figure 3). Two new projects, Dome Lindbergh and Shell Peace River, were announced during the year. BP/Petro Canada Wolf Lake, which was announced in 1983, began commercial production. Phases I and II of Esso Cold Lake were completed, Phases III and IV were begun and applications were submitted for regulatory approval of Phases V and VI. Amoco Elk Point received regulatory approval and construction was underway.
- The owners of the Syncrude project gave final approval to the Capacity Addition Project which will cost $1.6 billion and increase plant capacity to 21 900 cubic metres/day (138 000 barrels).
- A total of 71 experimental projects were underway.

Bi-Provincial Heavy Oil Upgrader

In June 1984 a federal-provincial agreement to proceed with the $3.2 billion bi-provincial upgrader and field development by Husky Oil Ltd. was announced. The upgrader, which will be located near Lloydminster on the Alberta-Saskatchewan border, will convert heavy oil and crude bitumen into synthetic crude oil suitable for refining in Canada. When completed, the upgrader will have a rated input capacity of 8 580 cubic metres (54 000 barrels) per day. Husky Oil is working to complete the commercial arrangements that with the government agreements will allow the project to proceed.

Petrochemicals

In November 1984 a two-part program to reduce the cost of feedstock to the Alberta ethylene industry was announced:

- The Natural Gas Pricing Agreement Act (NGPAA) was amended to enable the governor-in-council to make regulations exempting natural gas contracts from those provisions of the NGPAA that automatically assign the Alberta Border Price (ABP) to all gas "sold under contract to an original buyer whose principal business is the transportation or sale or both of gas in interprovincial or international markets." This change permits producers and straddle plant operators to negotiate the price of ethane shrinkage gas at market prices on the same basis as intra-Alberta industry users.
- A short-term, transitional program to reduce feedstock costs to the average intra-Alberta price while commercial contracts are under re-negotiation was implemented. The Government of Alberta will provide funds until July 1986 to reduce the straddle plant purchase price of gas to a level which reflects the average price of sales within Alberta.

Western LNG Project

In December 1984 a conditional gas removal permit to supply Alberta natural gas to the proposed Western LNG Project was approved. The permit allows for 1.5 trillion cubic feet of Alberta gas to be exported for liquefaction and shipment to Japan over a 20-year period. This was the first permit to remove gas for a destination outside North America approved by the Alberta government. By year end, however, the project had been completely restructured and the project proponents and buyers had not yet reached agreement on pricing terms.

Energy Conservation

The division is responsible for the development and implementation of information/education programs emphasizing the efficient use of energy.

There are four program areas:

- industrial program for business, industry and institutions
- transportation program for vehicle and fleet operators
- residential program for households
- schools program for school children and teachers

The industrial energy conservation program includes an energy audit service. In 1984/85, 219 energy audits were conducted throughout Alberta at industrial plants, commercial and municipal buildings, recreation facilities and public buildings such as schools and hospitals. The audits identified easily achieved potential energy cost savings of $4.4 million per year. This represents 22 per cent of the current energy costs of the facilities surveyed. New publications were also developed to increase awareness of industrial energy management techniques.

The transportation program distributed 450 000 Fuel Economy Calculators at 1 025 fueling stations throughout Alberta to improve awareness of vehicle energy use. A brochure on vehicle selection for fuel economy was introduced and a computerized display was used successfully at auto shows. In addition, a survey of commercial vehicle fleets identified potential savings through energy management.

The residential energy conservation program added two booklets to the Alberta Energy Savers series. This series of "how-to" booklets for homeowners is very popular: in 1984/85, 294 000 copies were distributed through almost 800 provincial outlets such as hardware or building supply stores. Energy Savers Workshops offered hands-on instruction and practical advice to 2 870 homeowners in 127 workshop sessions held across the province.

In the schools program, classroom presentations were delivered in 110 schools to over 22 000 students. In addition, 160 teachers and 27 principals attended workshop sessions to demonstrate the use of the curriculum-based kits now available for each elementary grade.

The division works closely with other government departments and agencies to co-ordinate programs and share information on energy efficiency.

Communications

The division is responsible for communication planning for the department and provides a broad range of public relations services. These include department communications programs, divisional public affairs activities and editorial and publications services.

Communication planning was of major importance in 1984/85. In consultation with management, communication plans were developed for several divisions. In addition, a process was initiated to identify, analyse and recommend ways to handle public issues affecting the department. For example, consultation with the Resource Evaluation and Planning Division resulted in successful public involvement programs in 12 sub-regional integrated resource plans. A major advertising and information campaign on integrated resource management was also arranged.

One important goal is to establish and maintain lines of communication, understanding and co-operation between the department, the divisions and their publics. Several communication programs in 1984/85 were successful in assisting the divisions to achieve this objective. Examples include the Forest Service, the Fish and Wildlife Division and the Energy Conservation Branch.

One program was the development of a marketing plan for the distribution and promotion of both federal and provincial maps through 85 retailers and 44 centres throughout Alberta. This marketing approach to communications planning represented a "first" for the department.

Public information and education programs are another important link between the department and the people of Alberta. The division assisted in implementing a forest fire prevention campaign and a Use Respect campaign to improve relations between landowners and hunters.

An important channel of communication between the department and the public is the Information Centre in Edmonton where individuals and businesses can obtain printed information, ask questions and buy permits and licences. Use of this facility increased markedly in 1984/85, the second year of operation. Over 125 000 publications were distributed, 20 per cent more than the previous year.

Mineral Resources

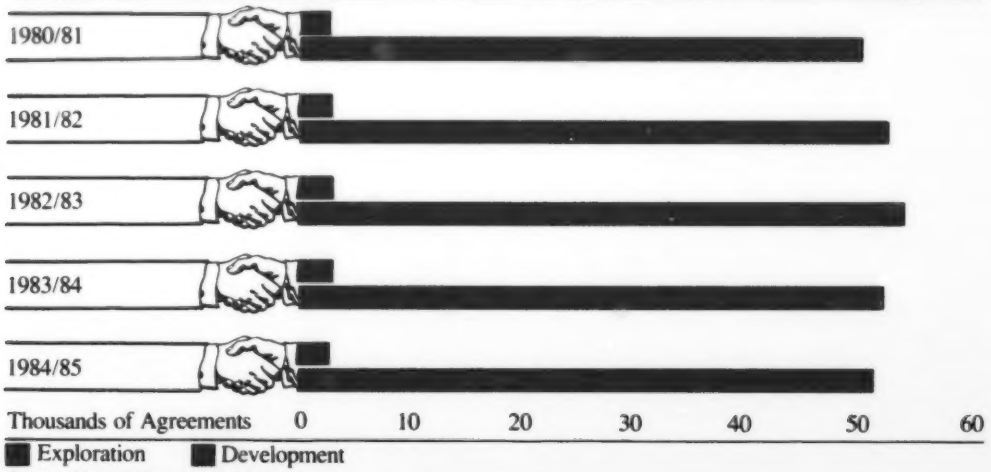
Mineral Resources Division is the largest in the energy resources sector. Major responsibilities are to:

- formulate mineral resource policy, recommend legislation and exercise ministerial discretion in administering the Mines and Minerals Act, except for royalty and marketing aspects
- allocate the Crown's mineral rights and administer the Crown's mineral rights agreements with respect to coal, natural gas, oil sands, industrial and metallic minerals
- distribute mineral-related data and information to industry and the general public
- mediate complaints arising from exploration activity

Issuance and Administration of Crown Agreements

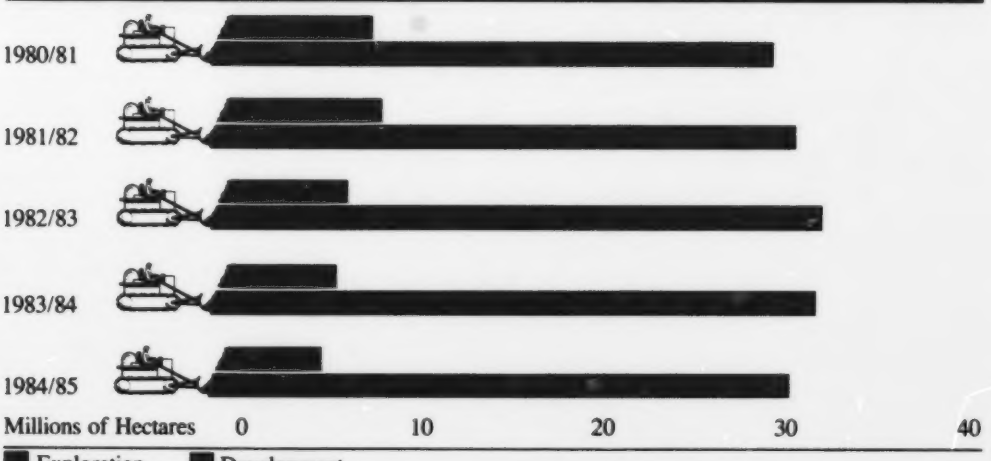
One of the major responsibilities of the division is the issuance and administration of permits, licences and leases, pursuant to which the private sector develops mineral resources. As development in the western basin has matured, the amount of available unexplored land has declined and the likelihood of discovering additional large reserves is dwindling. In addition, the nature of the economic environment and geological prospects have resulted in the focusing of exploration and development efforts. Consequently, the number of hectares held in active agreements has decreased for each of the past four years, even though the number of agreements administered by the department has remained fairly constant. On March 31, 1985 there were 53 085 active Crown agreements encompassing 32.6 million hectares. This compares with 53 439 agreements and 33.6 million hectares outstanding the previous year end, and 53 781 agreements and 37.02 million hectares outstanding in March 31, 1982, when the highest number of agreements and hectares was outstanding (Figures 4 and 5).

Figure 4 Mineral Agreements Outstanding



Source: Mineral Resources Division

Figure 5 Mineral Hectares Outstanding



Source: Mineral Resources Division

While the number of exploratory agreements increased compared with the previous year, the outstanding area remained constant (Figure 6). Similarly the number of development agreements increased, but the outstanding number of hectares was down (Figure 7). A further breakdown suggests that the outstanding area for oil sands prospecting permits and metallic minerals increased, but it decreased for nearly all other categories.

Petroleum and Natural Gas Agreements

Petroleum and natural gas activity is represented by a number of indices, including the bonuses from oil and gas rights sales, continuation of leases, unitization of agreements and leases subject to drilling requirements. In 1984/85 oil and gas rights sales were brisk. The continuation of the majority of agreements indicates industry will continue to be active, and the increasing number of unitization agreements confirms the maturation of productive capability.

Figure 6 Active Mineral Exploration Agreements

	MARCH 31/84		ISSUED		CANCELLED		MARCH 31/85	
	Agreements	Hectares	Agreements	Hectares	Agreements	Hectares	Agreements	Hectares
Oil sands	7	29 248	1	19 968	3	18 880	5	30 336
Petroleum and natural gas	2 147	4 049 739	902	1 341 900	648	1 374 868	2 401	4 016 771
Metallic minerals	1	3 968	7	34 984	2	11 136	6	27 816
TOTAL	**2 155**	**4 082 955**	**910**	**1 396 852**	**653**	**1 404 884**	**2 412**	**4 074 923**

Source: Mineral Resources Division

Figure 7 Active Mineral Development Agreements

	MARCH 31/84		ISSUED		CANCELLED		MARCH 31/85	
	Agreements	Hectares	Agreements	Hectares	Agreements	Hectares	Agreements	Hectares
Oil sands	256	2 588 655	3	25 708	5	59 352	254	2 555 011
Petroleum and natural gas	46 516	25 420 902	4 442	1 614 635	3 943	2 483 986	47 018	24 551 808
Coal and coal road allowance	3 379	1 485 705	97	58 415	215	142 637	3 261	1 401 483
Metallic minerals	7	9 539			1	6 400	6	3 139
Other minerals	126	17 298	25	6 521	17	2 490	134	20 935
TOTAL	**50 284**	**29 522 099**	**4 567**	**1 705 279**	**4 181**	**2 694 865**	**50 673**	**28 532 376**
Grand Total (Development and exploration)	**52 439**	**33 605 054**	**5 477**	**3 102 131**	**4 834**	**4 099 749**	**53 085**	**32 607 299**

Source: Mineral Resources Division

Oil and Gas Rights Sales Twenty-five public offerings were held in Calgary during the year. Bonus considerations from the sale of 2.11 million hectares of petroleum and natural gas leases and licences totalled $662.1 million, 36 per cent higher than the previous year. This was the highest total collected since 1980, and illustrates renewed optimism in the oil and gas sector (Figure 8). Most of the rights purchased are in the northern areas where exploration and development activity was concentrated.

Figure 8 Oil and Gas Rights - Sales Bonuses

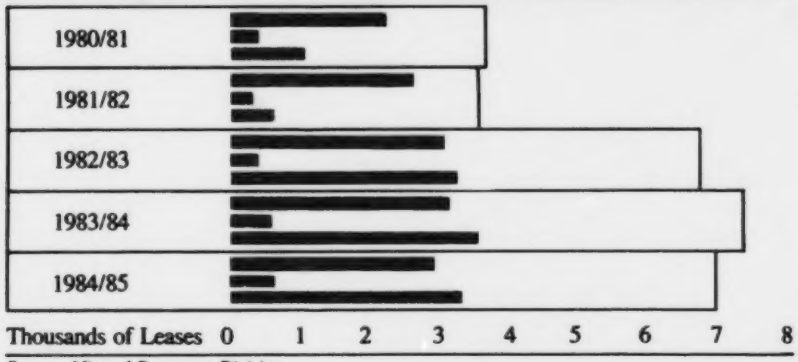
Millions of Dollars 0 100 200 300 400 500 600 700 800

Source: Mineral Resources Division

Continuation of Leases On behalf of the minister, the department exercises substantial discretionary authority with regard to the continuation of petroleum and natural gas leases. This necessitates close co-operation with the lessee and with the Energy Resources Conservation Board (ERCB) on geological, geophysical and engineering matters. Liaison with the ERCB is maintained through the department's senior technical geology adviser in Calgary.

During the past three years the number of leases expiring has been high but stable compared with historic levels (Figure 9). During 1984/85 a total of 6 268 individual petroleum and natural gas leases whose terms of five, 10 and 21 years expired were reviewed to determine whether they qualified for continuation. Of the total, 2 529 leases were continued due to established productivity. A further 626 leases or portions of leases considered to be potentially productive but not proven were continued for a further year, after payment of the $25 per hectare security required for the portion continued. The return of the security is contingent upon a well being drilled on each such lease to determine whether or not it is underlain by an oil or gas pool. The rest of the agreements, over 3 000, expired.

Figure 9 Lease Continuation



Source: Mineral Resources Division

Of the 593 leases continued during fiscal 1983/84 as potentially productive but not proven, 356 were continued as productive, 216 were cancelled and 18 continued for a further period of one year.

During 1984/85, 609 notices to demonstrate leases or portions thereof to be productive were served to Crown lessees.

The legislation in the Mines and Minerals Act that addresses the continuation of leases was substantially unchanged since 1976 and required updating. While the main concepts were retained, the department recommended two significant changes in 1984. The first is to continue larger lease areas during continuous drilling operations. This would provide for additional discretion where the lessee is operating late in the life of the lease. The second is to revert non-productive deeper rights on a production spacing unit basis rather than on a lease basis. This would ensure that non-productive rights are not retained by the lessee and that they are made available to other parties. Following discussions with industry organizations, these recommendations were introduced as amendments to the act in the 1985 spring legislative session.

Unit Agreements Unit agreements minimize operating costs in multi-lessee or multi-owner oil and gas pools and facilitate secondary and tertiary recovery. The division's responsibilities in regard to unit agreements are to ensure that the terms and conditions of Crown leases are not negated and, where diversity of mineral ownership exists, to further ensure that the Crown's royalty participation is equitable.

During the year, 17 new unit agreements became effective, indicating that a sizable number of pools with diverse ownership were becoming depleted. Significantly, seven existing unitized areas were enlarged, indicating that new discoveries were made in areas adjacent to producing units. One unit agreement was terminated.

Drilling Requirements Ten-year petroleum and natural gas leases that reached the end of the sixth year of their terms during the fiscal year and on which a well had not been drilled are subject to statutory drilling requirements or payments of penalties in order to keep the lease active. As the number of 10-year leases outstanding declines, the corresponding number subject to drilling requirements has also decreased. During 1984/85, 1 909 leases were extended by payment of $11.1 million pursuant to this provision.

Oil Sands

Increased interest in oil sands development was reflected in announcements of commercial projects, in the commencement of capital projects to increase the capacity of existing oil sands mines and in continuing field testing of new technology.

These developments only indirectly affected the activity of the division, since most of the prospective area for oil sands has already been issued. During the year the statutory definition of oil sands was broadened to allow oil sands agreements to be issued in Lindbergh and similar areas. One oil sands prospecting permit was issued to the Alberta Oil Sands Technology and Research Authority (AOSTRA) to provide a location for an underground testing facility. Three

prospecting permits were terminated: one permit was converted into an oil sands lease, and the locations of the other two cancelled permits were consolidated with existing leases.

Significantly, as companies plan for the commercial exploitation of their leases, three exchanges of oil sands rights between the Crown and lessees were effected to consolidate oil sands lease holdings into more feasible blocks. This resulted in cancellation of three leases and the addition of Crown corridors to consolidate irregularly shaped leases. One oil sands lease was surrendered and cancelled following the evaluation of oil sands reserves.

Two oil sands leases were issued from petroleum and natural gas agreements where wells discovered oil sands deposits. Five more applications were held pending receipt of technical data from the applicants.

Coal

Developments in the coal sector were mixed, reflecting two differing aspects: the improved domestic thermal coal market and difficulty with the export market for coking coal.

After a three-year lapse, the department resumed the public offering of coal rights to the highest bidder of a refundable work deposit. In December 1984, 64 parcels of land were offered in the settled regions (category 4 of the 1976 Coal Development Policy). Successful bids were tendered for 39 of the parcels, resulting in total deposits of $1.5 million and the issuance of leases covering 40 733 hectares. Most of these leases are for thermal coal which will eventually be mined for electricity generation within Alberta: 94 per cent of the area is in the Plains where sub-bituminous coal occurs; six per cent of the area is in the Foothills where bituminous and sub-bituminous coal occur.

Alberta's coal industry also continued to be affected by uncertain export markets. While the division renewed 33 coal leases and continued to issue Crown coal leases and Crown coal road allowance leases within existing or newly approved mine permits and licences, industry reassessment of its holdings resulted in the surrender or cancellation of 164 leases. This resulted in coal lease rental payments decreasing from $3.6 million in 1983 to $3 million.

Coal exploration activity declined measurably, continuing the trend that began over three years ago. Only 190 drill holes were drilled compared with 350 in the previous year.

A total of $964 956 in refundable work deposits, allocated from previous coal lease offerings, was refunded against eligible expenditures by coal lessees.

Metallic, Quarriable and Other Minerals

Following the promulgation of the Metallic Minerals Regulation in August 1984, the industry resumed its activity in Alberta. Six metallic mineral exploration permits were issued covering 23 912 hectares. One permit, issued from a public offering held on December 12, 1984, raised $1 074 080 in the form of a refundable work deposit.

There was increased interest in Crown quarriable mineral rights and 10 new leases were issued, four renewed and only one surrendered.

Generally steady gold prices sustained the increased interest in placer mineral rights. The division issued 173 new placer mining permits and one placer mining lease on a location co-existent with a sand and gravel deposit. The division also issued one new Crown salt lease and one new Crown sodium sulphate lease.

Exploration, Compensation and Complaints

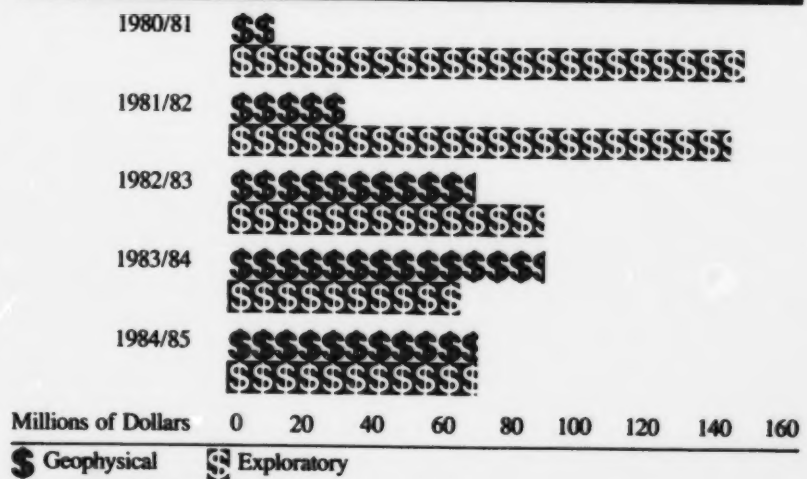
The division administers the exploratory drilling and geophysical incentive systems and conducts field inspections of exploration activities and landowner complaints. The division also processed all exploration approvals until October 1, 1984, when the responsibility was transferred to the Alberta Forest Service.

Exploration

During 1984/85, 2 114 exploration programs were completed. This represents an increase of over 32 per cent compared with the past year.

The payment of incentive credits decreased for

Figure 10 Geophysical and Exploratory Incentive Credits



Source: Mineral Resources Division

the geophysical program but increased for exploratory drilling so that they were virtually equal for both programs in 1984/85 (Figure 10).

A significant administrative simplification to the 1984 Geophysical Incentive Regulation was the requirement for payment in cash of all credits established. Completed programs eligible for the grants of incentive credits decreased by 277 to 1 431 for the year, a decrease of 16 per cent. Credits established have decreased as a result of administrative changes to the Alberta Petroleum Incentive Program and are not an indication of a decrease in the level of activity.

Incentive credits established under the Exploratory Drilling Incentive System increased by nine per cent and certified depth intervals increased 40 per cent from the previous year. The increase reflected the industry's anticipation of a satisfactory new oil and gas pricing and taxation agreement between governments.

Both the Geophysical Incentive System and the Exploratory Drilling Incentive System were being reviewed at year end.

Compensation and Complaints

Mineral Resources and Mineral Revenues divisions together administer compensation of mineral agreements.

Three new applications for compensation were received; 17 were pending from the previous year. Five claims were settled encompassing eight coal leases covering 5 328 hectares, one quarriable lease and 12 certificates of record covering 773 hectares. A total of $354 784 was paid to the lessees as compensation under the Mineral Rights Compensation Regulation.

A field staff of eight exploration inspectors is responsible for investigating complaints arising from exploration activity in the settled portions of the province. The staff also recommends remedial action and penalties for operators of exploration equipment found to be in contravention of the Exploration Regulation. Landowner complaints have decreased 21 per cent from the previous year although geophysical activity as measured by crew months was the same. Of the 313 complaints received, 268 were resolved by the year end.

Scientific and Engineering Services

Scientific and Engineering Services Division has two main responsibilities: the management of research programs and the provision of advice and support to the deputy ministers and the department. In addition, the executive director of the division is the chairman of the Alberta Office of Coal Research and Technology and the division provides administrative support to this office.

In 1984/85 the efforts of the division were concentrated on the management of research programs. The division administers and manages two major programs: the Alberta/Canada Energy Resources Research Fund (A/CERRF), which was established in 1974, and the province's Reclamation Research Program.

Alberta/Canada Energy Resources Research Fund

A/CERRF programs include research, development and demonstration projects in coal research, energy conservation and renewable energy, and conventional energy resources. Research facilities at Calgary and Devon are supported by the fund. In 1984/85 construction of the Devon Coal Research Building was completed, as were the remaining active conventional energy research projects. Continuing programs with priority are in coal research and energy conservation/renewable energy.

Coal Research Program

A/CERRF supported 12 active projects in coal research during 1984/85. Most funds were allocated to specific coal mining, beneficiation and conversion programs at the Coal Mining Research Centre and the Coal Research Department of the Alberta Research Council. Four industry projects were also supported. While funding of these activities remains with A/CERRF, project administration for them was delegated to the Alberta Office of Coal Research and Technology.

The Coal Research Grants Program was initiated in January 1985 to encourage basic coal-related scientific research in the universities. Six awards to research scientists at the Universities of Alberta and Calgary were approved.

Energy Conservation/Renewable Energy Research

The Energy Conservation and Renewable Energy Research Program is the other priority area within A/CERRF. During 1984 activity concentrated on projects related to energy conservation in buildings, wind energy, waste heat recovery and natural gas processing.

Twenty-three projects were supported under the Energy Conservation in Buildings Sub-program. These include:

- development of building components
- development of building energy management systems and controls
- field testing and demonstration of conservation equipment, for example, gas furnaces

- energy efficiency survey of homes, townhouses and co-operative housing units, including the evaluation of infiltration losses of Alberta residences
- development of a computer program inventory and an Alberta weather data base relevant to building design and evaluation

Support for three wind energy research projects continued. Promising results have been achieved by Abax Energy Services Ltd./Deltx Windpump Corporation of Calgary with the further development of a six-metre and a 20-metre Delta Blade Wind Turbine for direct water pumping applications. The first three-year test phase of the small scale wind turbine performance test site at Lethbridge received good response and co-operation from wind turbine manufacturers, dealers and potential users, most of whom are from the farming community.

A major research effort dedicated to implementing energy conservation measures in sour natural gas processing was completed with the development of an energy audit strategy for gas plants. Finally, a new Waste Heat Recovery/Low Temperature Heat Utilization Demonstration Sub-program, which will be implemented in 1985/86, was developed. During 1984/85 four new patent applications were filed for inventions resulting from research and three additional patent applications for previous inventions were filed in Australia.

Reclamation Research

The Reclamation Research Program is funded through the Alberta Department of Environment. However, it is administered by the Interdepartmental Reclamation Research Technical Advisory Committee, whose chairman is a member of the division.

The program was designed to incorporate three industry/government sub-programs: a) Plains Coal, b) Oil Sands and c) Mountains and Foothills. The latter was implemented this year with four projects under way. Industry support for the Oil Sands and Mountain and Foothill programs makes up 50 per cent of the total research budget. Industry has also supported the Plains Coal Program by construction of test plots and provision of access, staff and records. In 1984/85, 18 research projects were supported. The provincial government contributed $1 320 000 to the program.

Results now available from the Plains Coal Program provide regulatory agencies and industry with a rational basis for reclamation evaluation and planning. The more recently developed Oil Sands and Mountain and Foothill Coal programs are expected to yield similarly important results within the next four years.

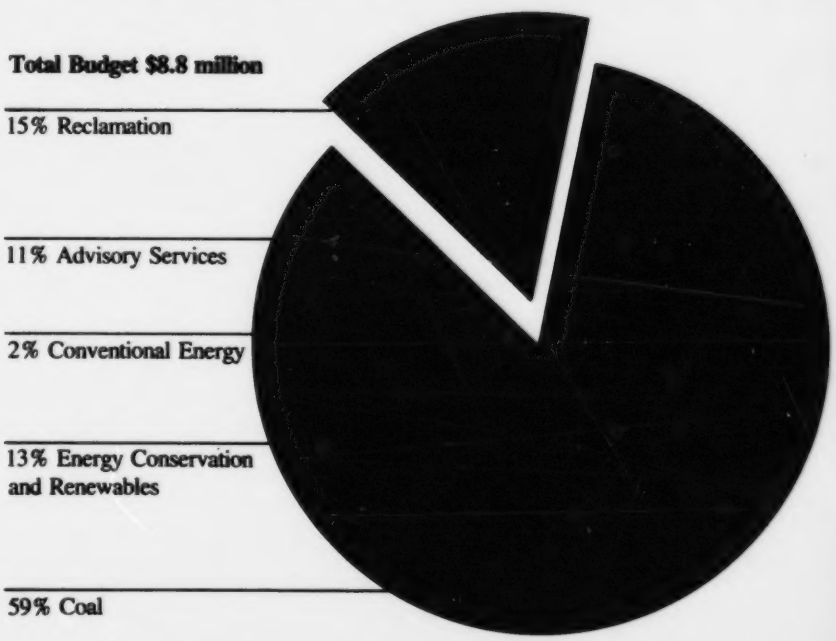
Advisory and Support Services

The second major responsibility of the division is to provide advice and support to the department. These services have been exercised in a variety of ways during the year. The division directs the Deep Basin Research Program, aimed at improving the inventory and protection of renewable resources during development activities for petroleum and natural gas. This four-year program, in co-operation with industry and other divisions, is near completion and final reports are in preparation. Within the Watershed Project, a number of publications relating to watershed protection have been prepared.

Members of the division participated in a number of task forces or committees including the Alberta-Ontario Coal Task Force, the Interprovincial Advisory Council on Energy (IPACE) R&D Co-ordinating Committees, the International Energy Agency Working Party for Fossil Fuels, the Keephills Power Project Steering Committee, the Chamber of Commerce Coal Committee and the Alberta Chamber of Resources Board of Directors.

The distribution of the division's research and program expenditures, most of which were allocated to coal research and development, is shown in Figure 11.

Figure 11 Research and Program Expenditures 1984/85



Source: Scientific and Engineering Services

Alberta Petroleum Incentives Program

The Alberta Petroleum Incentives Program (APIP) was created to encourage petroleum and natural gas exploration and development in Alberta. The program also supports enhanced oil recovery projects.

APIP was created by the Petroleum Incentives Program Act passed by the Alberta Legislature in November 1981, subsequent to the Canada/Alberta Memorandum of Agreement on Energy Pricing and Taxation concluded in September. Alberta undertook to administer and fund the portion of the federal Petroleum Incentives Program applying to oil and natural gas exploration and development activities in Alberta. The federal Petroleum Incentives Program was created in October 1980 to provide cash grants to Canadian-owned and -controlled companies in lieu of the earned depletion allowances provisions of the corporate income tax system. APIP was established for a limited period, and following the Western Energy Accord of March 1985 it was under review along with other provincial incentive programs.

Under APIP, eligible applicants may obtain incentive payments equal to a percentage of their incurred eligible costs and expenses. These include exploration and development expenses for oil and gas wells, geological and geophysical expenses and development drilling and asset costs related to enhanced oil recovery projects. Costs and expenses must be incurred between January 1, 1981 and December 31, 1986.

In 1984/85 APIP received 7 943 applications. The total number of applications since APIP began is 18 182. In 1984/85, $363.9 million in incentive grants was paid, for a total of $1.2 billion since the program started.

An important development in 1984 was the simplification of procedures for APIP applicants. This followed the amendment of the Petroleum Incentives Program Regulation to significantly reduce the number of adjustment rules. Adjustment rules, which are part of the federal government's Canadianization policy, serve to reduce incentives in proportion to the possibility of leakage of benefits to non-Canadians. Although Alberta recognizes the objectives of Canadianization, the province believes that these adjustment rules add unnecessary complications to the application process. As a result of the amendments to the regulation in July 1984, few APIP applicants will see their eligible expenses adjusted.

There was significant progress in 1984/85 in expanding APIP's capacity for computerized processing of applications. When the automation program is fully implemented, the time required to process application forms should be greatly reduced.

Alberta Oil Sands Equity

Alberta Oil Sands Equity manages Alberta's investment in the Syncrude Project and in an exploration and development program on six oil sands leases in northeastern Alberta.

Syncrude produced 6.2 million cubic metres of synthetic crude oil in 1984/85, even though the plant experienced a major fire in August 1984 which shut it down completely for five weeks. Full operation was not resumed until December 1984.

Syncrude owners gave final approval to the Capacity Addition Project (CAP) in March 1985. CAP, which is expected to cost the owners $730 million, is a major part of the five-year capital investment program announced in 1983. The capital program is now expected to cost $1.6 billion and to increase the plant capacity to 21 900 cubic metres (138 000 barrels) of synthetic crude a day. Construction is on schedule for completion in 1987.

Syncrude owners are also examining the possibility of adding a third production unit which would increase plant production by 50 per cent to over 31 800 cubic metres per day. Discussions on fiscal terms are continuing between the owners and the provincial and federal governments.

The province's 16.74 per cent participation in the Syncrude Project produced a net profit of $86.5 million in 1984/85 compared with $61.4 million in 1983/84. At March 31, 1985 Alberta's participation in the project amounted to $439 million, which consisted of net cash advances of $172.5 million and accumulated profits of $266.5 million.

RENEWABLE RESOURCES

Alberta Forest Service

The objective of the Alberta Forest Service (AFS) is to manage the province's forest lands to ensure a perpetual supply of benefits and products while maintaining a high-quality forest environment.

Forest lands cover 397 000 square kilometres, or 60 per cent of the province. Of this, 164 050 square kilometres are productive forest land and support 1.5 billion cubic metres of wood. An additional 71 905 square kilometres have the potential to produce forest products. The remaining areas of rock, muskeg and wetland are not considered capable of producing timber.

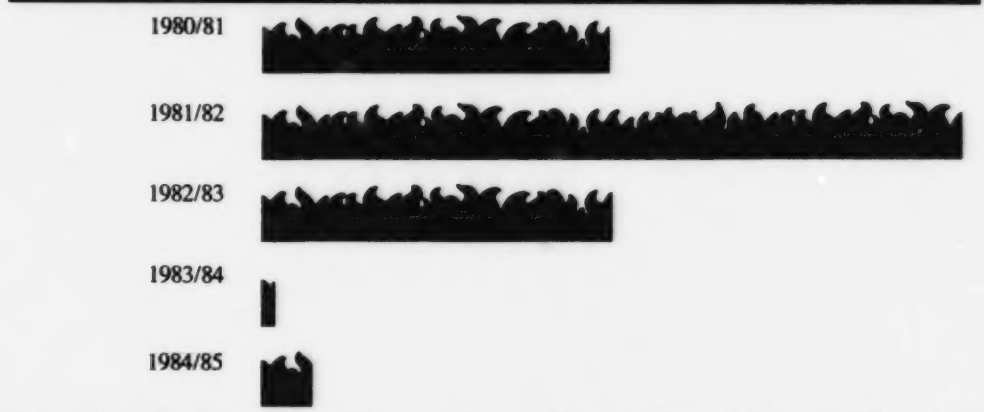
A significant achievement was the proven effectiveness of the presuppression preparedness system, introduced in 1983, which is used to detect and respond to forest fires. Its first real test was in 1984, when there was the second highest incidence of forest fires in Alberta's history; 1 375 fires, with 654 fire starts in 16 days in mid-summer (Figures 12 and 13). However, early detection and good preparation resulted in only nine of the 654 fires escaping early containment. Lightning caused 65 per cent of all fires, an increase of 10 per cent over the average for the past five years. The cost of forest protection for 1984 was $41 million, with direct suppression costs of less than $8 million.

The Automatic Lightning Detection System continued to function as a valuable tool in increasing detection reaction time and

Figure 12 — Fire Incidence

Source: Alberta Forest Service

Figure 13 — Area Burned



Source: Alberta Forest Service

containment success through loaded aircraft patrols. This technology and strategy resulted in much faster detection of a number of fires which, in turn, significantly increased initial attack success during critical hazard periods.

Of interest this past year was the involvement of AFS with the Province of Ontario in the Jiagedaqi model fire management project in the Chinese province of Heilong Jiang. AFS is providing the fire detection component. This project is funded by the Canadian International Development Agency (CIDA).

A major program is the control of the mountain pine beetle infestation in the Eastern Slopes region. The infestation has remained fairly static in the lodgepole pine stands with 5 000 trees treated. Major infestations are still being discovered in limber pine stands; however, high winter mortality of larva this past year could result in reduced future infestations. Spruce beetle infestations were discovered in the Peace River and Footner Lake Forests, but these appear to have subsided.

A reorganization of the Forest Protection Branch emphasized fire management, in particular the use of fire in resource management, and a higher profile for the insect and disease program.

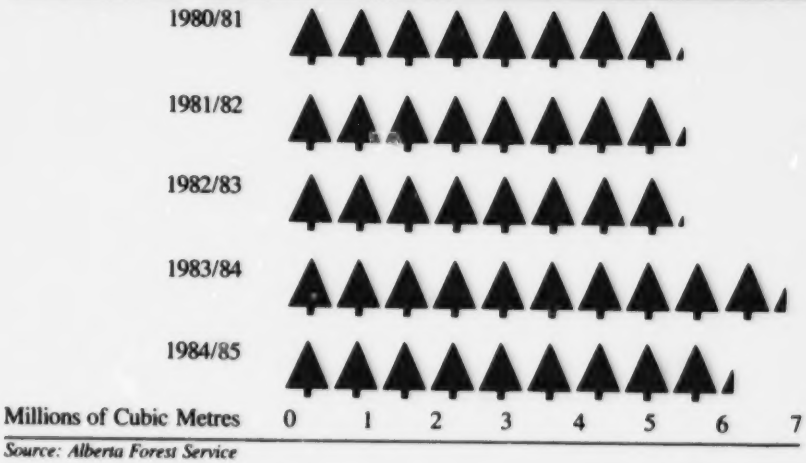
Geophysical approvals for the Green and White areas are now issued by the Forest Land Use Branch. Transfer of this responsibility from the Mineral Resources Division to AFS was the result of the department's commitment to the petroleum and natural gas industry to improve the administration of the Exploration Regulations.

The Range Management Program allows ranchers to use Crown lands for livestock grazing. In 1984/85, 200 000 animal unit months (AUMs) of grazing were utilized in the Rocky Mountain Forest Reserve and on 257 000 hectares in other parts of the Green Area. To maintain the current level of grazing, 1 350 hectares were improved through the Range Improvement Program at a cost of $496 136.

The Forest Service continued to maintain and operate 112 recreation areas, 22 group camps, and 16 remote camping sites in the Green Area. An extensive system of formal and informal trails also provided opportunities for hiking, cross-country skiing, snowmobiling, and equestrian and off-highway vehicle use.

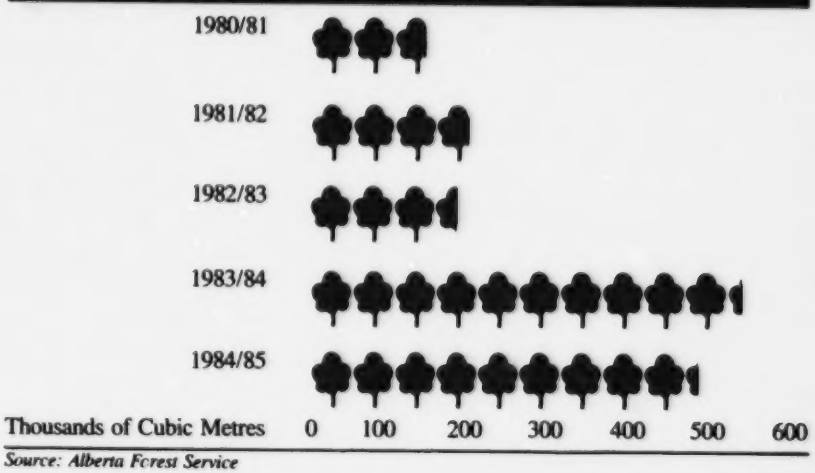
Timber harvested from provincial Crown lands totalled 6 562 804 cubic metres, a decrease of 10 per cent from 1983/84. The harvest is primarily utilized in the manufacture of pulp, lumber and panel products. Eighty-five per cent was sawlogs or peeler logs and 12 per cent was pulpwood. The remaining three per cent was utilized for other products such as posts, poles or fuelwood.

Figure 14 Coniferous Timber Harvest



Source: Alberta Forest Service

Figure 15 Deciduous Timber Harvest



Source: Alberta Forest Service

The coniferous timber harvest was 6 091 935 cubic metres or 93 per cent of the total harvest (Figure 14). The deciduous harvest was 470 869 cubic metres or seven per cent of the total harvest (Figure 15). In addition, the province's forests provided 51 413 Christmas trees and 15 290 transplants for the public.

A total of 36 544 timber dispositions were issued, 10 per cent less than the 40 600 dispositions issued in 1983/84. Only 94 out of 36 544 would be considered major dispositions; the remainder were Local Timber Permits or Forest Product Permits (Figure 16).

Figure 16 Timber Dispositions Issued - 1984/85

Type	Number Issued
Coniferous timber quota	20
Deciduous timber allocations (DTA)	0
Licences	
Coniferous quota	26
Deciduous, DTA	2
Commercial timber permits	
Coniferous - green	30
Coniferous - dead or damaged	14
Deciduous - green	2
Local timber permits	1 370
Forest product permits (Tree Tags)	35 080
Total timber dispositions issued	**36 544**

Source: Alberta Forest Service

The Timber Revenue Enumeration and Evaluation System (TREES) was completed on schedule in January 1985. This major computer system provides for better accounting and statistical reporting.

A large number of quota renewals are being proposed in advance of the twentieth anniversary of the Timber Quota System in 1986. A major change to the new quotas will be an improvement to the quota utilization standard. Quotas will be renewed to a 15-centimetre stump diameter rather than to the current 25-centimetre stump diameter. As a result, new management plans must be prepared. These plans will ensure that the timber resource continues to be harvested in an orderly and efficient manner and will ensure that the forests are not over-cut. Work on these plans has been underway for some time and is progressing well.

Reforestation is another major activity of AFS. Reforestation surveys were completed on 24 073 hectares of cutover land, including 9 873 hectares of post-harvest surveys and 14 200 hectares of regeneration surveys. Of the area surveyed for regeneration, 76.5 per cent was found satisfactorily stocked according to existing provincial standards.

Silviculture treatments completed by the AFS included mechanical scarification of 6 911 hectares, seeding of 5 303 hectares, planting of 7 334 hectares (8 831 160 seedlings) and thinning of 68 hectares. Cone collection totalled 1 128 hectolitres of lodgepole pine cones. Only lodgepole pine cones were collected in 1984 due to the absence of a spruce cone crop. The nursery processed 11 551 hectolitres of pine cones and 219 hectolitres of spruce cones from both this year and the previous year. The total seed inventory decreased by 5 645 kilograms to a total of 44 789 kilograms.

The Maintaining our Forest Afforestation program (MOF) funded through the Alberta Heritage Savings Trust Fund included 5 233 hectares of stocking surveys, land clearing of 1 216 hectares, 8 177 hectares of mechanical scarification, 142 hectares of chemical site preparation for planting and the planting of 8 124 hectares with 10 349 161 seedling trees. A total of 403 hectares were aerially seeded, 288 hectares of young plantations were released from competition with chemicals and the brush was removed manually on six hectares. Fertilization to promote release of planted stock was completed on nine hectares.

A special planting ceremony was held at the Pine Ridge Forest Nursery to commemorate the shipping of the 100-millionth seedling. More seedlings were shipped from the nursery than ever before; 9 383 273 seedlings were shipped for planting in 1984 and another 11 930 830 seedlings were lifted for shipping in 1985.

Expansion of the genetics and tree improvement laboratory and greenhouse complex at Pine Ridge was completed. This will permit increased co-operative programs with the Forest Management Agreement holders.

Production of planting stock was started for two white spruce seed orchards at Pine Ridge and one white spruce orchard near Grande Prairie. The latter orchard is a joint government-industry project. Four new genetics research plantings were established and greenhouse seeding completed for eight additional field experiments.

The Alberta Heritage Savings Trust Fund allocation funded seven of 34 operational reclamation projects. Projects to reclaim linear surface disturbances included access roads, trails and seismic lines. Non-linear disturbances reclaimed included abandoned oil and gas well sites, coal mines, sand and gravel pits, sawmill sites, campsites and refuse disposal sites. AFS directly contributed to the implementation of a joint government-industry reclamation field trial in the oil sands area. Maintenance and assessment of established revegetation trials in the Eastern Slopes and oil sands areas were conducted.

Forest research occurred in three major areas: reforestation, watersheds, and growth and yield. Reforestation research evaluated the optimal lifting time and storage limitations for bareroot seedlings, the extension of the planting season and the identification of optimal microsites for planting. Watershed research involved the effect

on fish populations of changes in water quantity and quality resulting from timber harvesting. A long-term research project concerning stand development was initiated in the Grande Prairie Forest.

Eleven contracts were awarded to private, university and government agencies to carry out research on areas where specialized equipment or expertise are not available within the Forest Service. In addition, nine research studies were funded from the Forest Development Research Trust Fund.

Junior Forest Wardens increased to 106 clubs with 2 000 members. More than 50 leadership workshops, ranging from outdoor learning and forestry education to planning and consultation, were conducted throughout the province. The Junior Forest Ranger program held 14 camps enabling 168 young Albertans to live, learn and work in the forest environment.

Public Lands

Public Lands Division is responsible for the administration of public lands as defined in the Public Lands Act.

A major function of the division is to determine the suitability of public lands for various purposes. Some are leased for grazing, cultivation, recreational, commercial or industrial uses. Suitable lands may be sold for farms, subdivisions or plant sites. Grazing reserves are developed on some public lands for livestock grazing. Other lands are reserved for the use of other departments and agencies.

The total area of Alberta is 255 285 square miles (661 185 square kilometres) or some 163 million acres (66 million hectares). About 62 per cent is under provincial control and more than 60 per cent of all lands, largely the forested regions, is not settled. The status of lands in Alberta is outlined in Figure 17. A significant portion of Crown land in Alberta has been designated with a

NOTE: The Public Lands Act of Alberta retains imperial measurement; therefore, Public Lands information in the ENR Annual Report is given in imperial and SI (metric) units. All other divisions report in metric.

Figure 17 Status of Lands in Alberta - March 31, 1985

	Area in square kilometres	Area in square miles	Percentage of Alberta
Privately owned land	183 695	70 925	27.8
Public lands			
Under disposition leading to title	2 320	896	0.4
Under disposition not leading to title	29 046	11 215	4.4
Special areas	12 615	4 871	1.9
Provincial Parks, wilderness areas	2 326	898	0.3
Willmore Park, ENR natural areas	4 776	1 844	0.7
Metis settlements	5 053	1 951	0.8
Indian reserves	6 566	2 535	1.0
Non-settled public lands			
Forested lands within the Green Area[a]	289 100	111 622	43.7
Forest Management Agreement areas and provisional reserve	47 840	18 471	7.3
Vacant public land (within Yellow and White Areas[b])	14 727	5 686	2.2
Federally controlled lands (national parks, research stations, Department of National Defense, etc.)	63 121	24 371	9.5
Total area of Alberta	**661 185**	**255 285**	**100.00**
Land	644 389	248 800	97.5
Water	16 796	6 485	2.5

a *Green Area: Forested lands withdrawn from settlement, managed for forestry and other multiple uses.*

b *Yellow Area: Lands located in the Peace River region. Public lands in this area are managed for multiple use, including agricultural uses, pursuant to the Public Lands Act and regulations.*

White Area: The settled area of the province. Suitable public lands within this area may be disposed pursuant to the Public Lands Act and regulations, except for homestead sale dispositions.

Source: Public Lands Division

ERRATA

1. Replace Figure 18 on page 26 with the following:

Figure 18 Crown Lands with Protected Status in Alberta

Under Legislation	Area (km²)	% of Alberta
National Parks	54 084	
Provincial Parks	1 252	
Natural Areas	179	
Forest Land Use Zones	5 643	
Provincial Recreation Areas	138	
Willmore Wilderness Park	4 597	
Wilderness Areas	1 010	
Bird and Wildlife Sanctuaries	694	
Forest Recreation Areas	1 214	
Total	**68 811**	**10.4**
Under Protective Reservations		
Ecological Reserves	672	
Natural Areas	496	
Recreation Areas and Proposed Provincial Parks	596	
Total	**1 764**	**0.3**
	70 575	**10.7**
Under Protective Zoning		
Eastern Slopes		
Prime Protection Zoning	12 708	
Critical Wildlife Zoning	5 934	
Within Integrated Resource Plans outside the Eastern Slopes	3 762	
Total	**22 404**	**3.4**

A total of 10.7% of Alberta is protected, with 10.4% of the province protected under legislation and 0.3% under protective reservation. In addition, a significant portion of the 3.4% of the province which is under protective zoning does not overlap with other protective designations and could be added to the total.

Source: Public Lands Division

2. In Figure 19 on page 27, the legend should read:

- ☐ Dispositions in Effect
- ■ Dispositions Issued
- ■ Applications Received

Source: Public Lands Division

protected status for conservation, recreation, ecological and other purposes as shown in Figure 18.

Of the public lands under disposition under Public Lands Division management (4.8 per cent of the province), 0.57 million acres (0.23 million hectares) are under disposition leading to title. About 7.19 million acres (2.91 million hectares) are under disposition not leading to title (lease, permit or licence) and include 5.7 million acres (2.31 million hectares) of grazing leases and permits. Statistics indicating the number of applications received and the number of all public land dispositions are presented in Figure 19.

A major responsibility of the division is to respond to applications for public land dispositions. In 1984/85 applications related to oil and gas activity increased approximately 30 per cent over the last fiscal year. The most significant increase occurred in mineral surface lease applications (41 per cent) and pipeline installation lease applications (49 per cent). Oil sand exploration applications decreased to five, compared with nine in 1983/84, and coal exploration applications decreased to 19 from 41.

Surface materials lease applications increased by 22 per cent over the previous fiscal year; however, the number of surface material licences remained the same. Demand for surface material occurred mainly in northern Alberta.

To accommodate the need for industrial and commercial lots which resulted from increased oil and gas activity in northern Alberta, 80 of the 117 newly surveyed lots at Red Earth were leased.

The number of forest grazing licence applications decreased in 1984/85; the number of grazing permit applications remained the same. The number of active grazing licences and the area held under licence increased by approximately 10 per cent over the 1983/84 fiscal year. The number of new grazing leases declined slightly; however, the area contained in grazing leases remained at 5.3 million acres (2.2 million hectares).

In 1984 the division established a policy to allow subleasing of grazing lands to help farmers in drought-stricken areas.

The demand for agricultural cropland continued to be high. The number of applicants for sale or lease of agricultural cropland in 1984/85 remained essentially the same as in 1983/84. A total of 145 984 acres (59 079 hectares) or 1 132 whole or partial quarter sections were posted for farming and grazing.

In 1984/85 the division implemented on a trial basis the auction method of selling agricultural lands. Three auction sales resulted in higher returns to the province and faster service to the public.

An amendment to the Public Lands Act eliminated the issuance of new homestead sale dispositions. Existing homestead agreements are being maintained. All new dispositions for farm development are being issued pursuant to the Farm Development and Homestead Regulation which provides more flexible terms than the homestead sale.

Interest in the seeding and harvesting of wild rice continues, with more than 90 active growers in 1984/85 compared with 46 in 1983/84. Although wild rice growing is still in the experimental stage, 1 400 pounds (635 kilograms) of Alberta-grown wild rice were sold this year as seed.

Applications for recreational land increased by 22 per cent in 1984/85 in contrast to the previous fiscal year, which saw a 35 per cent decrease.

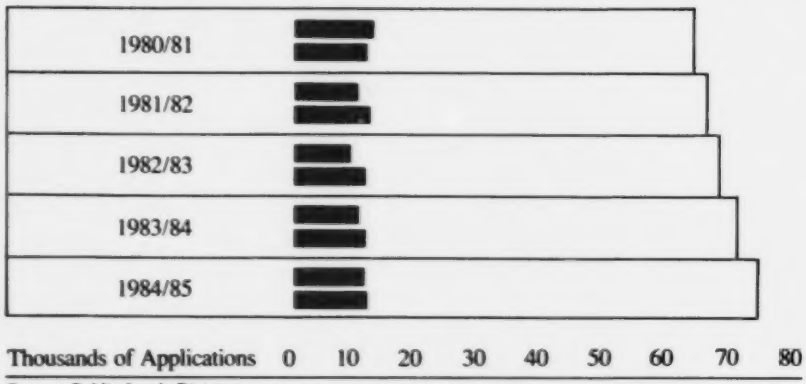
Public Lands is also involved in the administration of several ongoing programs. Under the government-funded Range Improvement Program, 213 applications were approved and funded for range improvement projects. Funding continued for 816 range

improvement projects. Projects undertaken on grazing leases include clearing, piling, forage establishment, trail and crossfence construction and water storage projects. The amount expended by the program on these projects is $3.7 million.

The Grazing Reserve Program provides summer pasture for the livestock of small-scale farmers and ranchers whose privately owned lands are thus freed for crop and hay production. The program is intended to help diversify and stabilize the agriculture industry. There are 32 grazing reserves covering 0.7 million acres (0.29 million hectares) in settled areas of the province. In 1984, 30 operational reserves accommodated 255 060 animal unit months of livestock grazing, which is equivalent to 66 900 head for a five-month season. A total of 1 570 patrons benefited from the program. Active development of grazing reserves continued during 1984/85 and included clearing, burning, breaking, seeding, aerial spraying, fertilizing, fencing and water development. These development activities involved contracts that cost $4.17 million, $3.42 million of which was funded by the Alberta Heritage Savings Trust Fund.

The ecological reserves program continued in co-operation with Alberta Recreation and Parks. Projects included boundary selection for proposed reserves and systematic study of natural zones. A few proposed natural areas were added to the existing inventory for recreation, conservation and education. Management planning began for some of these natural areas and some plans were completed with assistance from public interest groups. Since 1968, 95 natural areas comprising 44 356 acres (17 950 hectares) have been established by order in council and are administered by the division. One new natural area was created in 1984/85.

Figure 19 Activity on Public Lands



Source: Public Lands Division

In 1984/85 contracts were issued to a private consulting firm to conduct a detailed arable land inventory of 109 760 acres (44 420 hectares) as part of the department's accelerated land sales initiative.

Legal surveys were completed for 36 sections of public lands in the Fort Vermilion area. In addition, 75 industrial and 42 commercial lots were surveyed at Red Earth. Planning continues at Red Earth and Zama City.

Fish and Wildlife

Fish and Wildlife Division is responsible for managing fish and wildlife resources in the province to provide maximum public benefit and to ensure that viable populations are maintained for the enjoyment of future generations of Albertans.

The implementation of the Fish and Wildlife Policy for Alberta continued during the past year. A new Wildlife Act, passed in 1984, was the culmination of more than a year of public consultation. It is scheduled to come into force in 1986 along with new Wildlife Regulations.

The *Status of the Fish and Wildlife Resource in Alberta* is the first such declaration on the fisheries and wildlife resources by any Canadian jurisdiction. The report reflects broad resource and user goals that will guide the Fish and Wildlife Division in future species management planning and in program direction.

The Use Respect access-trespass program was expanded in 1984 through the support and co-operation of the Alberta Fish and Game Association, Unifarm and the Western Stock Growers' Association. Active support by local Fish and Game clubs has enhanced this program. Creative and effective local initiatives have encouraged positive relationships between landowners and sportsmen.

The Fish and Wildlife Ministerial Advisory Council took on a more prominent role as the key sounding board of public opinion on all aspects of fisheries and wildlife management in Alberta. This council, comprising 23 organizations and two citizens-at-large, had a major role in the development of all key policy and legislative matters dealt with in 1984/85.

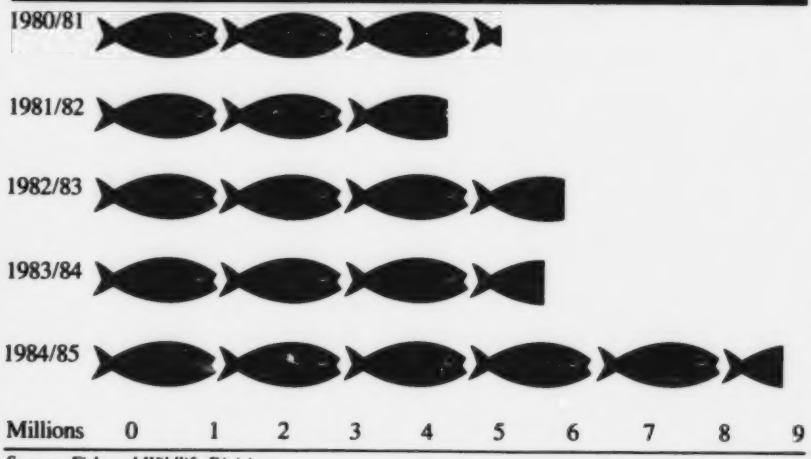
Honored recipients of the 1984 Bighorn Awards for outstanding contributions to fish and wildlife resource conservation in the province were Mr. Robert Burns, Mrs. Jeanette Burns, Mr. August

Figure 20 Species of Fish Stocked in 1984/85

Species	Number
Rainbow trout	4 270 770
Walleye	3 436 400
Eastern brook trout	306 300
Yellow perch	293 980
Cutthroat trout	183 280
Brown trout	155 300
Small mouth bass	20 000
Total	**8 666 030**

Source: Fish and Wildlife Division

Figure 21 Number of Fish Stocked



Source: Fish and Wildlife Division

Peters, Professor Ray Salt, Mr. Miles Smeeton and Canadian Hunter Exploration Limited.

A major function of the division is the management of aquatic resources in the province to ensure that viable fish populations are maintained for the benefit and enjoyment of Albertans. Important programs include:

- major program to stock fish
- development of sport fishing regulations
- walleye enhancement program
- monitoring lakes and streams to assess fish production and program effectiveness

Approximately 8.6 million fish were reared and stocked in 296 lakes or streams during 1984/85 (Figures 20 and 21). This provided the opportunity for angling in areas with few natural fish and ensured a variety of species for the angler.

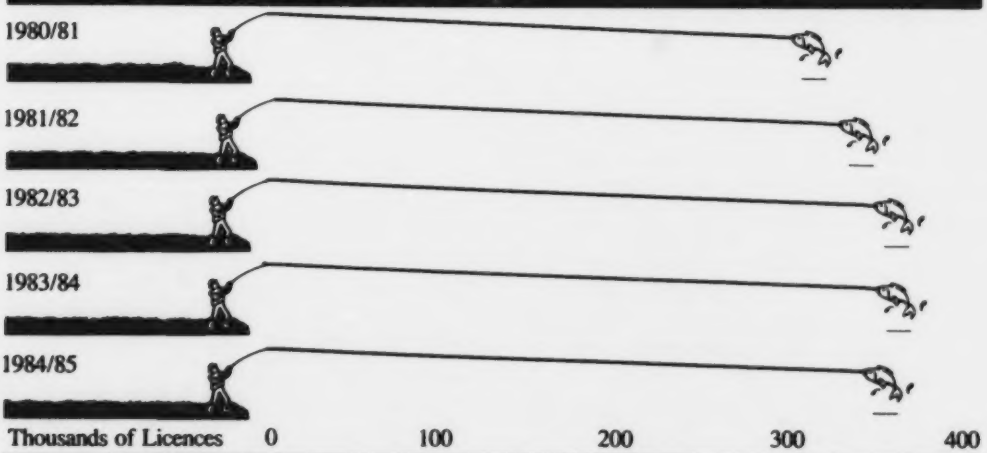
The total number of fishing licences issued over the last five years is illustrated in Figure 22.

The division also monitors commercial fish production (Figure 23). In 1984 a provincial fish marketing policy was implemented and a new commercial fishery licensing system was approved for implementation in 1986.

Hatchery construction included improved water systems for two hatcheries. Construction also began on the Cold Lake Fish Hatchery, which will be completed in 1986. A contract for facilities near Lake Wabamun to rear 145 000 yearling trout was awarded to a private operator.

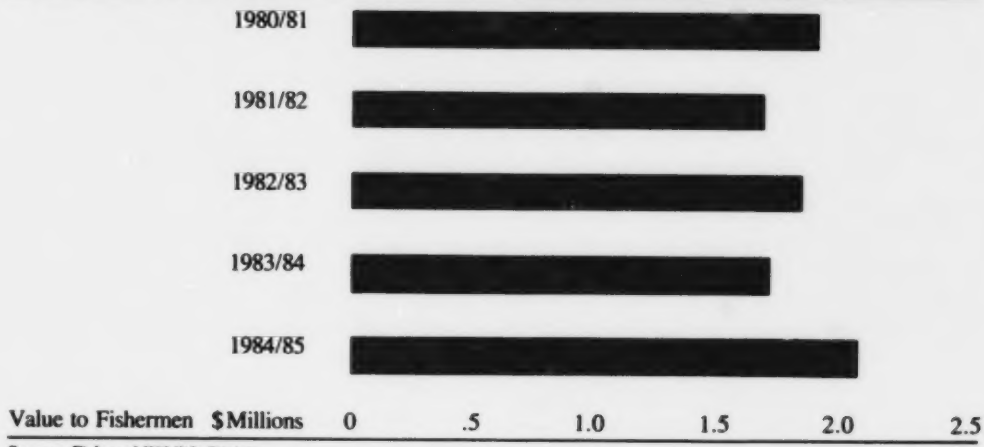
Major changes to hunting seasons and game hunting regulations were made in 1984/85 following extensive public discussion. The main objective of these revisions was to simplify

Figure 22 Fishing and Angling Licence Sales



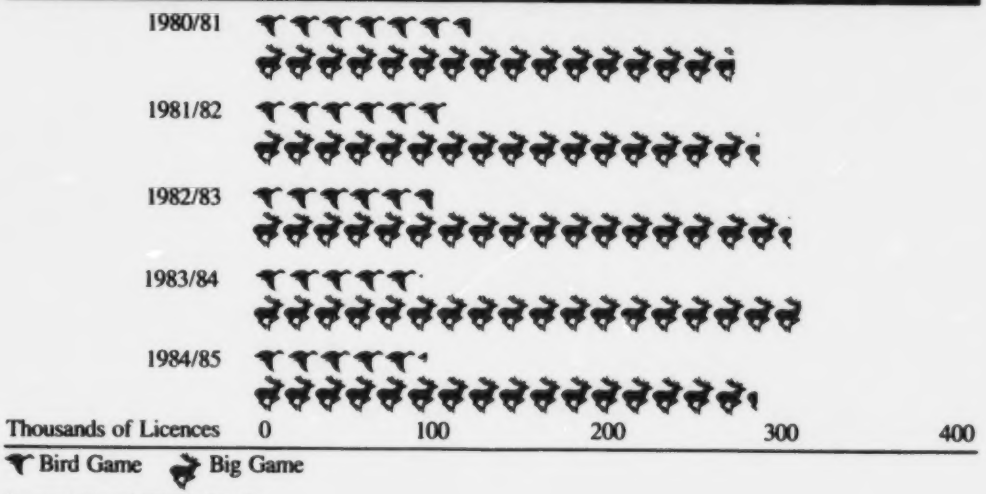
Source: Fish and Wildlife Division

Figure 23 Commercial Fish Production



Source: Fish and Wildlife Division

Figure 24 Wildlife and Bird Game Licence Sales



Source: Fish and Wildlife Division

regulations yet provide maximum recreation opportunities. The total number of big game and bird game licences issued over the last five years is illustrated in Figure 24.

The Wildlife Resource Inventory is a major program which assesses the wildlife habitat supply and population potential for several wildlife species. These provincial and regional assessments combine species-habitat relationship models with ecological land classifications.

Bighorn sheep in southern Alberta are recovering slowly from a bronchial-pneumonia die-off that began in British Columbia in 1981 and spread to Alberta in 1982. The slow recovery has been characterized by poor lamb crops each summer. Experiments are being conducted to determine if the die-off was self-induced by overpopulation and overgrazing or if the pneumonia was triggered by association with domestic stock.

Highlights of the carnivore management/nuisance wildlife program in 1984/85 were:

- historical review of wolf management in Alberta
- wolf-ungulate predation investigations near Nordegg
- review of grizzly bear data and management
- monitoring of skunk and bat rabies

The division plays an important role in establishing policies and procedures for endangered species. The program to re-establish wood bison, an endangered species, on their former range near Hay-Zama in northeastern Alberta continued with the transplant of 34 animals from Elk Island National Park to a fenced enclosure at the transplant site. Six calves were born to the group in 1984 and the herd is doing very well.

Efforts to maintain the remnant population of peregrine falcons in northern Alberta and to reintroduce a population in central Alberta continued in 1984/85. Two of six pairs located in northern Alberta produced young. Two young captive-raised peregrines were released at two locations in central Alberta. The program's success is marked by the establishment of one breeding pair in Edmonton and one in Calgary.

The monitoring and management of fur production is another function of the division. A discussion paper on fur management policy for Alberta, completed in 1984, will see some provisions implemented through the 1985/86 Wild Fur Industry Regulations. Comprehensive recommendations may follow after further public consultation.

Wild fur production indicates a major drop in the production of squirrel, lynx, mink and fisher pelts. Others are expected to remain near the 1983/84 returns, with coyote and marten showing a marked increase. Fur prices remained constant for more species, although lynx and marten pelt prices increased (Figure 25).

In July 1984 the Province of Alberta and the Fur Institute of Canada signed a five-year agreement to research and develop humane trapping systems. The program is being carried out at the Alberta Environmental Centre in Vegreville.

Twenty-four trapper education courses were held for 366 participants during 1984/85. Interest in courses remains high, and a new two-week program to respond to trapper needs will be implemented for 1985/86.

The division is also involved in management planning for Alberta waterfowl. In 1984 a revised draft of the Provincial Waterfowl Plan was reviewed. The province was also a formal participant in a Canadian negotiating team established to meet with the United States to develop an International Waterfowl Management Plan.

In 1983 two five-year cost-share agreements relating to waterfowl depredation were entered into with the federal government. In 1984/85 the compensation agreement was amended to increase the maximum payable from $65 to $70 an acre, and the prevention agreement was expanded to allow for additional lure crops, bait stations and scaring areas.

Another mild winter resulted in below-average breeding conditions for returning waterfowl in 1984. The breeding index for mallards was down 31 per cent and for total ducks down 20 per cent compared with the 10-year provincial average. Nesting populations of large Canada geese improved slightly.

Figure 25 — Wild Fur Production

Source: Fish and Wildlife Division

Surveys of upland game birds in spring 1984 indicated a general decline in the numbers of breeding birds across the province. However, weather conditions throughout southern and central Alberta during the peak hatching time in June were generally favorable for chick survival. In 1984 development continued for provincial plans to improve management of the upland bird resource.

The Brooks Wildlife Centre in 1984 hatched nearly 100 000 pheasant chicks. Many of these were distributed through the Raise and Release Program; 20 000 one-day-old chicks went to 4-H clubs, private raisers and Fish and Game clubs, and 15 000 six-week-old chicks went to Fish and Game clubs. The rest were raised at the centre to provide 1985 breeding stock and 56 000 mature pheasants for release.

Initiatives to expand non-game management were implemented in 1984. One project was an inventory of active or potential urban wildlife programs to provide information for the future development of programs aimed at enhancing the exposure of urban publics to wildlife. Another project gathered information on non-consumptive wildlife programs in other jurisdictions in North America. This information will be considered in the development of future non-game wildlife programs in the province.

In 1984, action was taken to increase public and private sector involvement in the habitat development program. The result of this initiative has been reflected best by the Alberta Fish and Game Association which, through affiliated clubs, accounts for approximately 10 per cent of the $1.2 million spent in 1984/85. This figure only represents the capital costs of the projects and does not reflect the many hours and services volunteered by the members. These services are conservatively estimated to double or triple the capital dollar investment. A further 30 per cent of the 1984/85 budget was committed to cost-sharing projects sponsored by local municipalities, interest groups and individuals. With this commitment of the funds we see projects which involve wetland enhancement for waterfowl, vegetation clearing, planting and burning for moose, elk, sheep and deer, placement of artificial nesting structures for geese, hawks, ducks and non-game species, fish pond development, stream channel improvements, shelterbelt planting and lake aeration.

There is every reason to expect the variety and level of participation by private and public interests will continue to increase in 1985/86. It is through this commitment by volunteers, particularly from organizations like the Alberta Fish and Game Association and Trout Unlimited, that Alberta's wildlife legacy will be retained for future generations.

The Fish and Wildlife Division was strengthened and further decentralized to expand its operations and to more effectively deliver the habitat development program. Regional staff were given increased responsibility and authority for fisheries and wildlife habitat development.

A major focus of the reorganization is an expansion of the habitat program within the settled area. One aspect is to secure and manage Crown lands that are essential to maintain wildlife in the settled area. A second is to initiate habitat development and retention projects in co-operation with the private landholder.

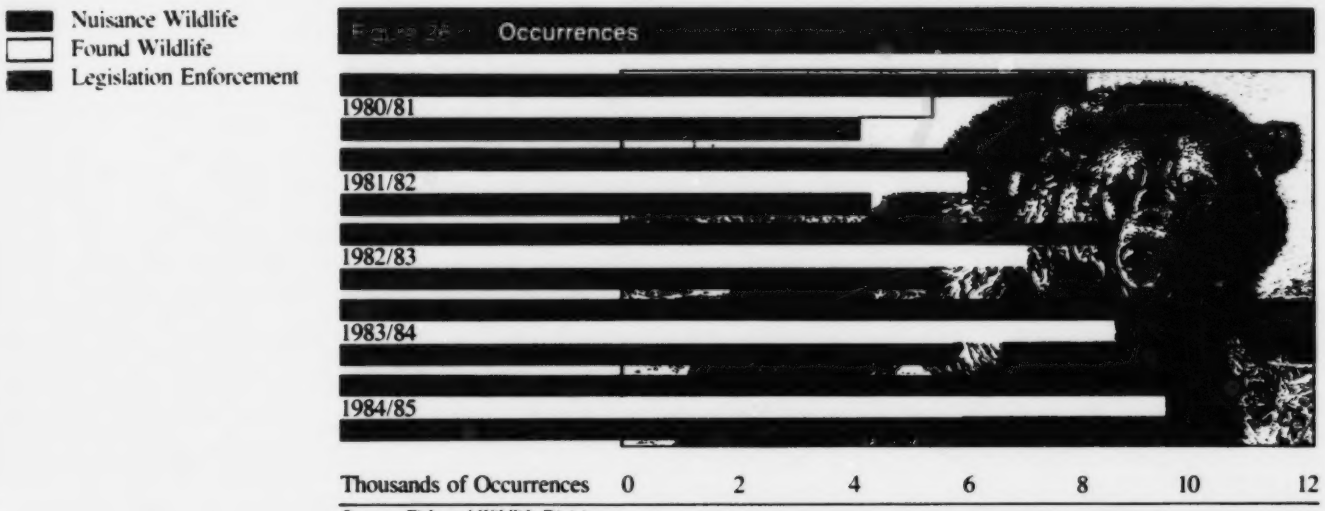
Active participation continued in the Wetlands for Tomorrow program, which was initiated in 1982 as a joint wetland conservation and development program between Ducks Unlimited (Canada) and the Alberta Government. Detailed management options were developed for Buffalo-Spotted lakes, Buffalo Bay-Horse lakes and Whitford-Rush lakes. Construction of capital works was initiated on Tyrrell-Rush lakes. Lands were acquired on three major Wetlands for Tomorrow sites: Kleskun Lake, Big Hay Lake and Stirling Lake. The next phase will involve the installation of capital works in co-operation with Ducks Unlimited (Canada).

A program to develop basic public-access facilities to fishing areas, including sanitary maintenance, was initiated in 1982. The 1984 program resulted in the completion of six sites on stocked lakes.

Habitat Branch efforts focused on the government's involvement in integrated land use and river basin planning. Important contributions were made to the government's integrated resource plans, and a major fisheries habitat effort was made to the South Saskatchewan River Basin Planning Program. Through the division's in-stream flow needs studies, information was provided to assist the government in the allocation of water for fisheries resource and recreational needs. Numerous land use applications were reviewed to ensure that fisheries and wildlife habitat needs were considered.

In 1984/85 Fish and Wildlife officers maintained a high quality of public service in the areas of administration of resource legislation, effective response to public inquiries, nuisance wildlife control and public education.

There was an increase of 1.3 per cent in the total number of occurrences handled by the Field Services/Enforcement Section over the previous



Source: Fish and Wildlife Division

year. The number of each of the three main types of occurrences is shown in Figure 26.

Public information and education is another area of responsibility. The division was active in providing information to the public through various displays, publications, films and television advertisements. Wildlife Week activities expanded to include 4-H, Alberta Recreation and Parks, Junior Forest Warden leaders, Girl Guides and Boy Scouts. Over 8 000 kits were mailed to Alberta schools. Project WILD, a balanced program of activities for teaching about wildlife, expanded with 68 facilitators trained and manuals distributed in 10 workshops.

The Alberta Conservation and Hunter Education Program was presented by more than 700 volunteer instructors to 11 000 individuals; 5 000 students attended outdoor camps at Narrow Lake and Alford Lake. There is a continuing effort to share more of the program with the private sector.

Resource Evaluation and Planning

Resource Evaluation and Planning Division (REAP) provides an integrated resource policy and planning service to the government. Other services include aerial photography, resource mapping and resource inventory and appraisal.

Increased demand for resource information is being met by the application of computer technology to resource mapping and inventory. Several related activities are oriented toward the development of a department Geographic Information System, for which a prototype is planned by March 1986. One such project is the Computer Graphics Mapping System (CGMS), from which computer readable map data are now being utilized in several areas of resource management and land administration.

The division provides aerial photography service to the department (260 projects) and to other government agencies (56 projects). All projects were produced through contracts with Alberta companies; 40 200 kilometres were flown and 17 400 frames of aerial photography produced.

One project by an Alberta company resulted in 152 200 square kilometres and 3 200 frames of aerial photography at a scale of 1:60 000. This material is used primarily for base map production and for orthophoto mapping.

Resource mapping is an important service provided by REAP. A major project is the 1:20 000 Base Mapping Project, which began full production with the release of five 1:250 000 blocks to five Alberta mapping contractors. In 1984/85 quadrants in two additional blocks were released. Final map specifications were determined and internal software developed.

Work was also carried out on 14 various scale topographic mapping projects. Six of the projects were contracted out to Alberta companies, compared to one the previous year. Map compilation was completed for 107 stereo-models covering an area of 223 square kilometres, mainly at a map scale of 1:2 000.

Another contract was for orthophoto mapping of 3 700 square kilometres in the Eastern Slopes area. Most of the maps were produced at a scale of 1:15 000.

The 1:50 000 Provincial Resource Base Map Series continues to be updated, with 103 maps completed in 1984/85.

A major project of the Alberta Forest Service is the Phase 3 Forest Inventory Program, for which REAP contracted to map 16 800 square kilometres. Approximately one-half was mapped by year end.

Resource inventory and appraisal is a major function of the division. Projects in 1984/85 included physical land and soils classifications, terrain sensitivity and linear corridor assessment. Biological/vegetation inventory data was gathered and 5 150 square kilometres of forest inventory interpretation completed at a scale of 1:15 000. Vegetation inventory data was collected in the Coal Branch, Berland and Keg River areas, and the results presented in ecological classification reports. Detailed forest type mapping was completed in the Tri-Creeks area, and biogeoclimatic zonation work was completed in northwestern Alberta.

Permanent plot establishment of the forest "Stand Dynamics" project was concentrated around Kakwa Tower, south of Grande Prairie.

Ecological land surveys were published for the Wapiti-Berland, Coal Branch, Chungo-Cline-Nordegg, Ram-Clearwater, Kananaskis Country, Red Deer-James and Keg River areas. The Berland area was also studied and is in a preliminary draft stage. Several special reports were completed including recreation surveys, forest capability assessment and a comprehensive list of natural resources evaluations.

The Climate Program operated five networks during this year. It handled over 100 requests for data and analysis and, with management agencies, developed a new agricultural rating system which will be tested next year.

Three 1:250 000 map sheets were selected in the Peace River region for reconnaissance aggregate inventory. Field work was completed, and preliminary maps and a draft report produced. A reconnaissance study of the Red Earth area, including field checking of selected specific deposits, was done in response to an urgent need for aggregate information.

Several excellent deposit prospects were identified. A study to assess the feasibility of creating an automated Aggregate Inventory Data Base, including the digitization of inventory maps, is being evaluated. A new procedure developed to identify and priorize aggregate data collection requirements was implemented.

A report on the coals of the Lower Horseshoe Canyon formation is planned for 1986. Information on coal thickness and depth of coal in the Ardley formation is now part of a computer data base from which preliminary maps are being produced. Evaluation related to collected data on the Belly River group began and will continue next year.

A new inventory program will provide an integrated inventory of non-hydrocarbon-related mineral resources within the province. A preliminary status report will form the basis for a strategic plan.

The annual Natural Resources Information Directory which provides an index to natural resource and land-related information for Alberta was distributed to a larger number of government and private users.

A major responsibility of the division is to co-ordinate the preparation of integrated resource plans. Public involvement is an important aspect of these plans. The division also provides review and referral services and co-ordinates department comments on a wide range of issues.

The division continued to co-ordinate the preparation of one local and nine sub-regional plans and the approval and implementation of five completed plans. Two new sub-regional plans were initiated. These plans cover an area of 38 000 km^2 in the Eastern Slopes and 17 000 km^2 in the remainder of the province.

Public involvement assumed a large role in the planning process with increased opportunities for the general public to become involved. Major public involvement events were held for six plans. Assessments of the financial, income and employment effects were completed for three draft plans and initiated for a fourth. The division also co-ordinated the completion of the 1984 revision of *A Policy for Resource Management of the Eastern Slopes* which was approved by Cabinet and has been widely distributed.

Development and implementation of the public involvement program continued. During 1984/85 seven major public involvement programs related to integrated resource planning were completed, six continued and two new programs were initiated. The division also conducted a major public information campaign on Alberta's integrated resource management and planning system. Another major campaign on the revised 1984 Eastern Slopes Policy initiated the development of an extensive provincial organizational contact list and a three-pamphlet public information series. Integrated resource management and planning concepts were actively promoted to a wide audience including representatives of government, industry and educational institutions. Divisional committees provided communication links for the department, other agencies and the public.

Alberta Bureau of Surveying and Mapping

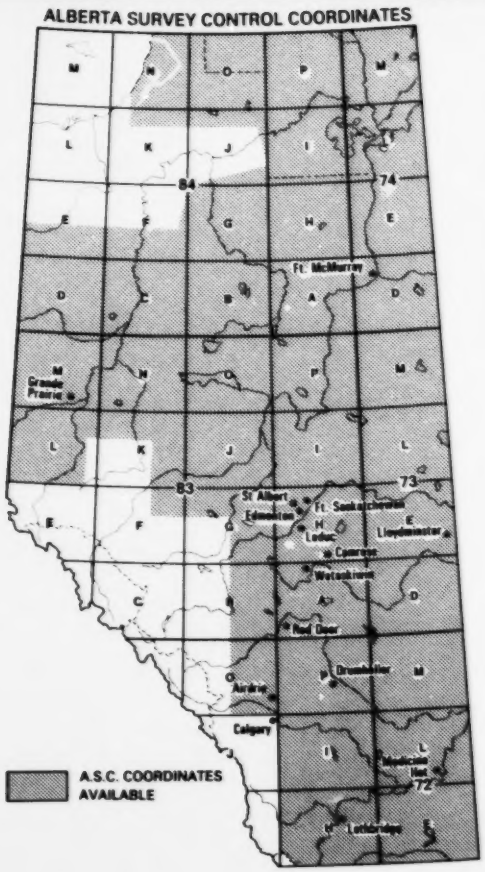
Alberta Bureau of Surveying and Mapping co-ordinates all provincial surveying and mapping activities. It develops and maintains standards and ensures comprehensive coverage of the province. The Bureau also distributes maps and aerial photographs for the province and for the Government of Canada, municipal governments and the private sector. It also chairs the Interdepartmental Committee on Surveying and Mapping. The Surveys Act, Lands Surveyors Act and Boundary Surveys Act are administered by the Bureau.

The Bureau provides a geographical positioning framework for the province suitable for use by government departments and the private sector in the integration of position-dependent land-related information. It provides a standardized mapping system for the province which is suitable as a base for the display of position-dependent land-related information. The Bureau also co-ordinates the development of a network of land-related information systems and fosters the sharing of information between the public and private sectors.

Major achievements for 1984/85:

- Completed negotiations and executed an agreement with the Government of Canada respecting distribution of federal maps and aerial photographs within Alberta.
- Digital mapping system converted to use on a VAX 780 computer, which gives improved performance in the preparation of digital mapping files.
- Completed two urban municipalities and added 484 new survey control markers under the municipal survey control program.
- In support of the 1:20 000 Base Mapping Project, contracted with private surveying firms to provide 1 012 field survey ties to township corners.
- Co-ordinated the administration for the Fédération Internationale de Géomètres (FIG) Symposium on Land Information Systems, in October 1984 in Edmonton.

Figure 27 Status of Framework Survey Control Program



Land Related Information Services (LRIS) completed its second full year of operation. Following a user needs study, it began development of a Network Implementation Plan to address identified needs. The highlight of the year was the successful FIG Symposium on Land Information Systems, which brought together a diverse group of international experts and users of land information systems and raised local users' awareness of technical and administrative requirements.

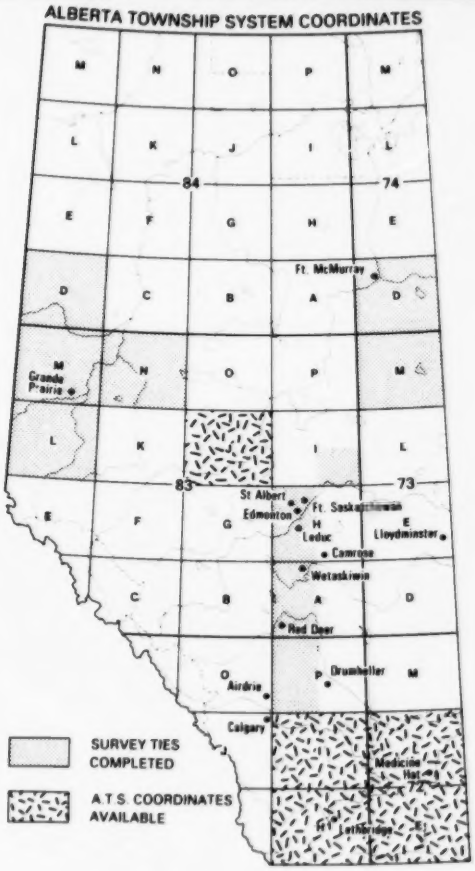
Another major program is the planning and creation of a provincial survey control network. A total of 484 new survey control markers were added in the high density municipal survey control and 176 new markers were added to framework survey control. Two new projects — the towns of Edson and Strathmore — were completed. Municipal survey control programs are now complete for one rural and 57 urban municipalities. The status of the framework survey control program is shown in Figure 27.

Programs to preserve and maintain the land survey system in Alberta are an important function of the Bureau. To support the 1:20 000 Base Mapping Project, private survey firms were contracted to obtain 1 012 field survey ties from the Survey Control System to township corners. New Alberta Township System co-ordinates were also computed for 800 townships (Figure 28). Maintenance of the Land Survey Data Base continued with co-ordinates computed for 451 1:1 000 map sheet areas and 285 1:5 000 map sheet areas. In addition, 3 726 survey plans were examined prior to their submission to the Land Titles Office for registration.

With the Resource Evaluation and Planning Division, the Bureau continued to devote significant effort to the planning and development of the 1:20 000 mapping data base for provincial mapping. In support of this and other mapping programs, the digital mapping system converted to use a Vax 780 computer, which gives improved performance in the preparation of digital map files. Topographic mapping for the municipality of Crowsnest Pass and the Towns of Taber and Oyen was contracted to private industry.

An important achievement was the negotiation of an agreement with Energy, Mines and Resources Canada, which gives the province the right to distribute federal map products in Alberta. It also transferred 54 federal dealership agreements to the province. In addition to the three existing provincially operated sales outlets, this gives 57 outlets for the purchase of federal map products. In future, provincial maps may also be distributed through these dealerships and new ones may be established throughout the province.

Figure 28 — ATS Co-ordinates Computed in 1984/85



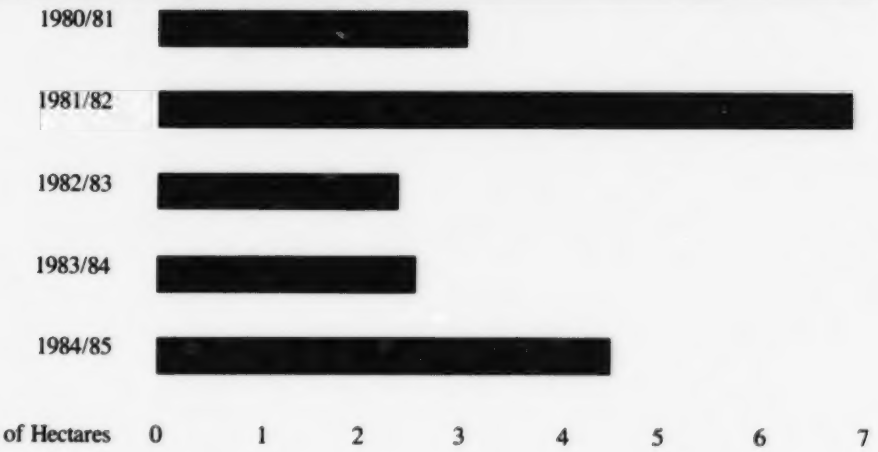
Foreign Ownership of Land Administration

Foreign Ownership of Land Administration enforces the Foreign Ownership of Land Regulations, which control the acquisition by foreigners of privately owned agricultural and recreational land in the province. Another major responsibility is the administration of the Land Agents Licensing Act and Regulations, under which all land agents in the province are licensed and regulated. Land agents acquire from landowners the surface interests in land required for mining operations, oil and gas well sites, power transmission lines, pipelines or related purposes.

Figure 29 shows the amount of controlled land acquired by foreigners under various exemptions or exclusions from the Foreign Ownership of Land Regulations for the past five fiscal years.

Figure 30 shows the number of active land agent licences for the past five fiscal years.

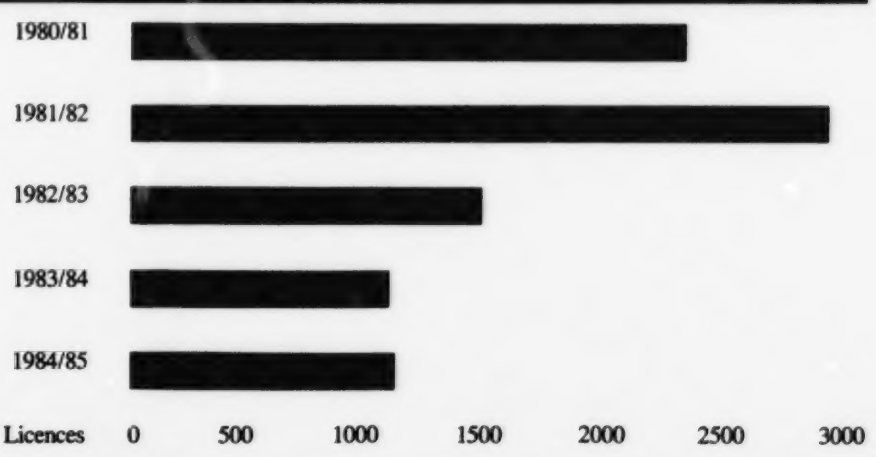
Figure 29 — Controlled Land Acquired by Foreigners



NOTE:
"Controlled land" is defined in the Foreign Ownership of Land Regulations as any land outside the boundaries of a city, town, village or summer village. It does not include Crown land or minerals. "Foreigners" include ineligible persons and foreign controlled corporations as defined in the regulations.

Source: Foreign Ownership of Land Administration

Figure 30 — Active Land Agent Licences



NOTE:
Effective April 21, 1982, all new applicants for a licence are first issued an interim licence which they hold for a 12-month period under the supervision of a licensed land agent. After a satisfactory supervision period and upon successful completion of the land agent examination, a land agent licence is issued.

Source: Foreign Ownership of Land Administration

FINANCE AND ADMINISTRATION

Mineral Revenues

Mineral Revenues Division is responsible for the calculation, collection, verification and reporting of royalties and freehold mineral taxes from non-renewable resource production. Revenues for the fiscal year were $6.1 billion, an increase of $426 million over 1983/84.

A major achievement is the continued development of the new Mineral Revenues System (MRS). This system is designed to streamline both industry and division reporting procedures. It will improve control over royalty revenues and provide more timely and comprehensive data for management. The freehold mineral tax, crude oil and common data subsystems are operational. The gas royalty subsystem will be implemented for the January 1985 production month effective May 1985. A series of seminars was held to acquaint industry with the new reporting requirements associated with the gas royalty administration project (GRAP).

The division also negotiates and administers Crown royalty agreements for oil sands projects. Formal agreements were concluded for two projects and agreements in principle for another four projects. Four projects are under review.

Draft policy statements were reviewed with industry on issues including crude oil deregulation, injection and field straddle plants. The Petroleum and Natural Gas Royalty Regulations will be revised in the next year to accommodate these policy initiatives and the revised business practices required under GRAP.

The division administers a number of royalty incentive programs. Operators receive a one-year royalty holiday for wells qualifying under the Oil Royalty Exemption System (ORES). In 1984/85, 275 applicants were received: 169 were approved, 44 denied and 82 are under review.

The province also shares in the incremental costs associated with approved Enhanced Oil Recovery (EOR) projects. Eight projects were extended relief under the program, bringing the total to 34.

Cyclical field audits are conducted to ensure that industry complies with legislative requirements when submitting royalty payments and incentive program claims. Recoveries of $34.5 million in royalties and mineral taxes were directly attributable to this function.

Mineral Revenues reorganization program continued. The program's objectives are to promote more efficient use of human resources and to provide the administrative support required to identify and resolve problem areas and to respond to the changing business environment.

Finance and General Services

Finance and General Services Division provides accounting, financial planning, records management, office and drafting services to the department.

Responsibilities of Financial Planning and Control are budget co-ordination, preparation of financial policies and procedures and development of new financial information systems. Significant improvements were made to the financial information and control procedures within the department.

Financial Accounting provides services that include invoice processing, revenue accounting and control, asset accounting and financial reporting.

General Services provides central administrative services to the department. A major activity is the continued development of the Land Status Automated System (LSAS), which records agreements affecting public Crown lands and Crown minerals. Automation of records for surface lands was completed in 1985; subsurface information is planned for 1987.

Other activities include improvement and expansion of the central filing system and an awareness program on the need to safeguard public property and information. Other services include arranging for appropriate accommodation and office equipment.

Systems Planning and Development

Systems Planning and Development Division provides technical expertise and leadership in the development of automated data and word processing systems to all divisions and programs of the department.

The development of the Mineral Revenues computer system (MRS) is well under way. This system will improve control over royalty revenues and provide more timely and comprehensive data for management. The recent federal-provincial energy understanding will require revisions to this system.

Another major project is the Land Status Automated System (LSAS) designed to record agreements affecting public Crown lands and Crown minerals. Automation for records of surface lands was completed in 1985; subsurface information is planned for 1987.

The Timber Records Enumeration and Evaluation System (TREES) was completed. The TREES

system will assist in providing better management of the province's timber resources.

The Warehouse Inventory System (WINS), to be completed in 1986, will result in better control of the inventory in forest headquarters and the provincial forest depot.

Personnel Services

Personnel Services Division provides recruitment, classification, employee relations, staff and organizational development and other services to 2 585 permanent staff and 235 project positions. This is a reduction of 31 permanent staff and 65 project positions from the previous year. Additional programs administered include the Priority Employment Program (169 individuals), the Summer Temporary Employment Program (423 individuals) and the Employment Skills Program (70 individuals). A Work Experience program in co-operation with the Edmonton school system provided 19 students with work experience.

Emphasis in staff training was placed on identifying and understanding employee and organizational needs. A department committee was established to address a major concern, the effect of automated information systems. This resulted in the development of a training program designed to create an awareness of and to enable employees to deal with the implications of automation.

The employee performance appraisal system was evaluated and revisions made. The new system has been viewed as a significant improvement and will be closely monitored over the next year to ensure it is meeting organizational and employee development needs.

The department safety record continued to improve. The number of days of work lost because of injury has declined consistently during the past three years. This year 1 120 days were lost compared with 1 997 last year and 3 160 the previous year.

The Forest Technology School continued to expand its services to the department and outside agencies, with 2 300 people participating in various training activities. This was an 18 per cent increase in overall use and was mainly due to the Fish and Wildlife Division. However, the Forest Technology program, offered in conjunction with the Northern Alberta Institute of Technology, experienced its lowest enrolment level in 12 years. Fire control training retained its prominent role, with particular emphasis on initial attack programs.

Internal Audit

Internal Audit Division assists management in the effective discharge of its responsibilities by providing analyses, appraisals, recommendations and comments.

Reporting on financial activities continues to be important; however, more emphasis has been placed on reviewing department programs to ensure that results are consistent with objectives. Major computer-based systems are being examined to determine whether controls are adequate and the needs of users and objectives of the system are being met. Following a special review, a microcomputer system standard was developed.

Audits were completed according to plan, including numerous special reviews for management. In addition, deficiencies identified by earlier audits were reviewed to ensure corrective action was implemented. The use of private-sector chartered accounting firms enabled staff to spend more time on unique departmental activities.

During 1984/85 savings of $1 175 000, resulting from audit recommendations, were identified. These savings are nearly three times the annual budget for the division.

The three-year audit program, a blueprint of future audit operations, has been updated in consultation with divisional management. It addresses the needs of the department and provides management with an operational overview.

Statement of Revenue for the year ended March 31, 1985 (unaudited)

ENERGY	1984/85 ($ 000)	1983/84 ($ 000) (Restated)
Royalties		
Oil, conventional and synthetic, and products	$ 3 053 671	$ 3 179 388
Natural gas and products	1 942 413	1 694 091
Coal and other	9 808	12 673
	5 005 892	4 886 152
Rentals and Fees		
Petroleum and natural gas, and synthetic oil	83 367	85 998
Coal and other	3 703	3 776
	87 070	89 774
Crown Sales, Petroleum and Natural Gas Agreements	662 134	486 981
Mineral Taxes	185 527	159 953
Crude Oil Export Charges	194 572	85 776
Gross Revenue (Energy)	**6 135 195**	**5 708 636**
Less Incentive Credits		
Exploratory drilling	64 281	39 919
Geophysical	63 711	33 978
	127 992	73 897*
Net Revenue (Energy)	**$ 6 007 203**	**$ 5 634 739**

RENEWABLE	1984/85 ($ 000)	1983/84 ($ 000) (Restated)
Taxes Licences and Fees		
Fish and wildlife royalty and taxes	$ 159	$ 139
Fishing licences	1 674	1 704
Game licences	4 539	4 494
Landman licensing fees	30	32
Forest Technology School fees	358	345
Timber dues and fees	18 353	16 795
	25 113	23 509
Leases and Permits		
Cultivation leases	1 017	1 217
Grazing leases and hay permits	4 897	3 936
Public land leases and permits	1 344	774
Right to access	4 590	4 923
Sand and gravel	1 175	1 055
	13 023	11 905
Provincial/Federal Government Agreements	960	1 010
From Revenue-producing Assets	1 263	1 309
Sale of Assets		
Homestead sales	358	858
Land sales	4 197	2 170
	4 555	3 028
Miscellaneous Revenue		
Survey, maps, plans and aerial photography	655	308
Other	571	954
	1 226	1 262
Total Revenue (Renewable)	**46 140**	**42 023**
Total Revenue (Department)	**$ 6 053 343**	**$ 5 676 762**

**See Note 2*

Prepared by Financial Accounting Branch
Finance and General Services Division
October 11, 1985

Statement of Expenditures for the year ended March 31, 1985 (unaudited)

	1984/85 ($ 000)	1983/84 ($ 000)
ENERGY DIVISIONS		
Mineral Resources	$ 5 906	$ 8 242
Policy Analysis and Planning	4 114	3 828
Scientific and Engineering	10 309	1 367
Alberta Oil Sands Equity	974	845
Alberta Petroleum Incentives	8 100**	8 386
Total Expenditures (Energy)	**29 403**	**22 668**
RENEWABLE RESOURCE DIVISIONS		
Alberta Forest Service	74 469	73 524
Public Lands	17 587	18 402
Fish and Wildlife	24 300	25 150
Resource Evaluation and Planning	12 126	13 728
Alberta Bureau of Surveying and Mapping	9 845	10 397
Foreign Ownership of Land Administration	312	344
Total Expenditures (Renewable Resources)	**138 639**	**141 545**
FINANCE AND ADMINISTRATION DIVISIONS		
Mineral Revenues	5 574	5 479
Finance and General Services	9 212	9 508
Systems Planning and Development	5 648	4 444
Personnel Services	2 402	2 398
Internal Audit	431	444
Total Expenditures (Finance and Administration)	**23 267**	**22 273**
EXECUTIVE OFFICES	**1 500**	**1 328**
SPECIAL WARRANTS AND SPECIAL PROGRAMS		
Energy Resources Research Fund (ERRF)	—	17 006
Exploratory Drilling Incentives and Geophysical Incentives Programs	—	133 788
Oil and Gas Well Service Industry Incentives	—	52 819
Ethane Feed Stock Price Equalization Program	17 858	—
Firefighting Special Warrant	18 206	15 212
Timber Salvage Incentive Program	—	1 796
Emergency Feeding Program	333	—
Buck For Wildlife Program	5 383	—
	41 780	**220 621**
Total Expenditures (Department)	**234 589**	**408 435**
Less expenditure recoveries:		
Alberta Petroleum Incentive Program	8 026**	8 287
Other	1 695	1 386
	9 721	9 673
Net Expenditures (Department)	**$ 224 868**	**$ 398 762**

See Note 1
See Note 3
***See Note 4*

Prepared by Financial Accounting Branch
Finance and General Services
October 11, 1985

Notes to the Financial Statements for the year ended March 31, 1985

Note 1 - Comparative Figures
The 1983/84 figures have been restated where necessary to conform to the 1984/85 presentation.

Note 2 - Statement of Revenue
The increased Incentive Credits is due to a change in the programs whereby all Incentive liabilities are now charged against Revenue. In prior years, part of the liabilities were funded through appropriations.

Note 3 - Statement of Expenditures
Alberta Oil Sands Technology and Research Authority and Alberta Petroleum Marketing Commission are not included in the Statement of Expenditures.

Note 4 - Statement of Expenditures
Costs of $73 946 ($99 440 in 1983/84) incurred, but not related to the Alberta Petroleum Incentives Program, have been eliminated from the transfer from the General Revenue Fund.

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Finance and General Services Division
October 11, 1985